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ABSTRACT

This collection of 20 papers, initially presented at the International Reading Association convention in Anaheim in May 1970, is aimed both at those preparing to teach and those actively teaching. Part 1, Basic Reading Skills: Methods and Content, has three articles on word recognition skills, each aimed at different grade levels, followed by articles on comprehension, content subjects, and reading and listening. Part 2, Procedures and Approaches, has one group of articles concerned with classroom procedures (relevancy, questioning, and modalities for learning) and another group of articles dealing with specific approaches to reading (film usage, the programed approach, and the conventional approach). Part 3, Teacher Improvement in Reading, opens with four articles concerned with the improvement of classroom teachers--one on the role of the teacher, one analyzing teacher effectiveness, one dealing with the changing of teacher behavior, and one concerned with factors contributing to teacher success. Next is a group of four articles offering innovative ideas concerning preservice preparation of teachers. Also included is an article on the use of paraprofessionals as reading aides. Tables and references for some presentations are included. (This document previously announced as ED 051 969.) (VJ)

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READING METHODS AND TEACHER IMPROVEMENT

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Foreword

ONE OF THE PLEASANT DUTIES of a past president of the International Reading Association is the presentation of publications originating during his term as president. As stated in the Introduction, the articles in this volume originally were given as papers on various programs at the IRA convention in Anaheim, California. The discussions have been collected here to make a unified publication focused on important aspects of reading instruction.

The editor, Nila Banton Smith, needs no introduction to IRA members or to other members of the profession. She has again performed at her usual high level of achievement in organizing these papers into a logical sequence which is easy to follow and practical to use.

The contents of this volume relate to skills and procedures basic to the teaching of reading. The presentations, therefore, should be useful to those preparing to teach as well as practicing teachers.

IRA is pleased to present *Reading Methods and Teacher Improvement.*

Helen Huus, *President*
International Reading Association
1969-1970

The International Reading Association attempts, through its publications, to provide a forum for a wide spectrum of opinion on reading. This policy permits divergent viewpoints without assuming the endorsement of the Association.

Introduction

The papers contained in this volume were presented in various programs of the International Reading Association's convention held in Anaheim in May 1970. They were selected by an IRA selection committee and are related to the topics of reading methods and teacher improvement.

Reading methodology and teacher improvement are definitely interrelated and intertwined. Keeping abreast of recent research and current theory in regard to reading methodology is a continuing improvement function of the teacher of reading; the remedial reading teacher; the clinician; the reading consultant or supervisor; and the college professor who gives preservice, graduate, or inservice courses in reading. And new methodology is now creeping into the colleges in ways of giving methods courses other than the timeworn lecture-textbook method. So methodology in reading is reaching a new level and achieving a new stature. It seems quite appropriate that a volume should be published on the combined topics of READING METHODS AND TEACHER IMPROVEMENT.

The articles in this volume seemed to fall naturally into three main parts. There are groupings within these parts, however, and these groupings are arranged largely in terms of logical sequence. To aid the reader in locating the sequential group in which he may be most interested, the organization of each part is briefly sketched below.

Part one contains those papers that deal with "Basic Reading Skills." Since word recognition is basic to all other reading skills this section starts with three articles on word recognition. These articles fall into a logical, sequential arrangement: one article on decoding skills having to do largely with skills in the *primary* grades, followed by one on word analysis skills in *intermediate* grades, followed in turn by one on content of a phonic program appropriate for *all* elementary grades.

In addition to and following the sequence of articles on word recognition, we are fortunate in having a group of excellent articles on reading in the other important areas of comprehension, content subjects, and reading and listening.

Part two is devoted to "Procedures and Approaches." One group of articles in this part is concerned with classroom procedures. The first article deals with the current concern of "Relevancy in the Classroom Teaching of Reading." The next article presents procedures for questioning and their effects. Implications of modalities for learning in first grade reading are given in the next article. The second group consists of articles which deal with specific approaches to reading.

Part three contains articles dealing with "Teacher Improvement in Reading." The first group presents four helpful articles concerning the improvement of classroom teachers: one discussing directly "The Teacher and the Improvement of Reading"; followed by one discussing an analysis of teacher effectiveness in the classroom; then one having to do with changing teacher behavior in regard to growth patterns in young children; and, finally, one concerned with factors contributing to the success of teachers of primary reading. Next in order is a group of four articles offering innovative ideas concerning preservice preparation of teachers on such topics as preparation and follow up of beginning teachers, a model for preservice education, two experience approaches for teaching college methods courses, and the use of videotapes in preservice education. Finally, a much needed article is provided in "Using Paraprofessionals as Reading Aides."

The articles on the whole are interesting, soundly based on research, and practical in their applications. It is hoped that each reader who peruses this volume may receive a measure of fresh stimulation and glean some useful ideas which will contribute to his personal "teacher improvement."

NBS

PART ONE. BASIC READING SKILLS: METHODS AND CONTENT

Strategies for Improving the Teaching of Decoding Skills

NILA BANTON SMITH
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THE DECODING SKILL had its inception when primitive man stood on a hillside and made gestures to his tribe which they "read" as a warning that the enemy was approaching, or when he stood on the other side of a river and made gestures indicating that game was plentiful in that vicinity. Next followed the decoding of picture-writing on sand, bark, or stone as the exigency of the occasion demanded. Finally, the alphabet was invented; then came centuries of decoding words with the use of the alphabet method.

Insofar as American schools are concerned, during the three-and-a-half centuries of our existence a great variety of decoding methods have been used at different times: the conventional alphabet method of course, but also methods using several modified alphabets; the word method; diacritical marking systems; and several phonic methods—the analytic method, the synthetic method, and the "family" method of blending initial consonants with phonograms. These methods have come and gone in cycles through the years of our past but at this moment every one of them can be found somewhere in the classrooms of the United States. Several other approaches have been added recently: modified alphabets have appeared again, of which i.t.a. is an outstanding example; the linguistic approach; the language experience approach; programed instruction; words in color; and technological approaches. Diversity in decoding approaches has never been so great in the schools of our country. Never has so much research been conducted in this area as that which has issued forth in recent years. The decoding skills are the focus of unprecedented attention at the present time and this attention is well deserved for nothing is more fundamental to the reading process than ability to "crack the code."

I will briefly sum up some of the recent research in this area with the hope that from it some strategies for improvement may emerge directly or through inference.

The Code Emphasis versus Meaning Emphasis Question

There have been varying points of view expressed of late in regard to the code emphasis versus the meaning emphasis in primary reading. Therefore, it seems advisable to touch upon this topic in discussing decoding skills.

In 1967, Chall (7) reported the results of an extensive analysis of research studies, interviews, and classroom visitations in her book *Learning to Read: the Great Debate*. This book included a discussion of the USOE First Grade Reading Studies as reported by Bond and Dykstra in *The Reading Teacher,* May 1966. (This was the first and only one of the USOE First Grade Reading Studies that had been reported at the time Chall's book was published.)

As a result of her research Chall reached several conclusions, one of which is quoted in part:

> . . . a code emphasis—one that combines control of words on spelling regularity . . . produces better results with unselected groups of beginners than a meaning emphasis, the kind incorporated in most of the conventional basal-reading series used in schools in the late 1950s and early 1960s.

I will now briefly discuss the results of the USOE First Grade Reading Studies, themselves, as they proceed through not only the first grade but also through the second and third grades.

During the first year of this series of studies, data were compiled from 27 individual projects in which different methods and materials were used including basal, basal plus phonics, i.t.a., linguistic, language experience, and phonic-linguistic (4).

Bond and Dykstra concluded at the end of this first year of experimentation that code emphasis programs tend to produce better overall achievement for beginners than do meaning emphasis programs.

Following the first year of experimentation, 13 of the 27 projects

were continued for another year to assess the relative effectiveness of these programs after two years of instruction (*12*). The results of the second grade study indicated that early and relatively intensive teaching of sound-symbol correspondences appeared to be highly related to reading achievement at the end of second grade, also. This was true of programs labeled i.t.a., linguistic, and phonic-linguistic.

However, when the third grade was reached researchers found a different situation. Six of the investigators (*15, 22, 23, 32, 33, 37*), of the original 27 projects followed their pupils through the third grade. These projects included basal readers, i.t.a., linguistic readers, diacritically marked readers, supplemental phonics, and phonic-linguistic readers. In five of the six methods being compared, the reading test results at the end of third grade showed no consistent and statistically significant superiority for any one of the methods. In one project (*23*), the phonic-linguistic method, there were the highest mean adjusted reading scores. However, this method also had the highest nonpromotion rates in first and second grades so removal of the poorest readers from the group because of promotion policies in the school might have affected the scores in this one case.

To sum up: according to the projection of the USOE Cooperative Studies into the third grade, the code emphasis in beginning reading does not show superiority over other methods. There was no consistent advantage for any of the methods studied when pupils were followed through to the end of the third grade.

We find similar conclusions resulting from studies conducted in other countries.

Morris (*27*) made a study in Great Britain in which she found a slight difference in favor of the phonics-first method in infant school, i.e. in the first three grades. For the next three grades she found achievement was somewhat greater for those whose introduction to reading had been the whole word method.

She concluded, "The teacher's competence, the children's intelligence, the classroom facilities were factors found to be more important influences on later reading success than the method used in the initial phases of reading instruction."

Müller (*28*) conducted a study to compare three different methods that had been taught in first and second grades: synthetic

(i.e. letter phonics), word method, and sentence-story method, using a sample of 587 second grade pupils in Wiesbaden and Frankfurt, Germany. He found that the synthetic method was superior to the sentence method at the end of the second year. However, at the end of the fourth year there were no significant differences among the three groups.

The samplings of research presented above support the contention that in the long run factors relating to the teacher, the children, and the school are more important to reading success than reliance on any one particular method.

In regard to decoding skills, specifically, it seems appropriate to mention that several of the original conclusions of the investigators (5) who directed the USOE studies may well serve as useful strategies in improving decoding skills in general. I will quote three of these conclusions and add comments of my own.

1. "Word study skills must be emphasized and taught systematically regardless of what approach to initial reading instruction is utilized."

As a result of their studies the investigators were quite positive in advocating the strategy of *emphasizing* decoding skills and teaching them *systematically* rather than incidentally.

2. "Combinations of programs, such as a basal program with supplemental phonic materials, often are superior to single approaches."

Games, devices, auditory and visual materials, and supplemental programs designed for use in improving the decoding skills are available in great variety. We rarely find scientific evidence in regard to the effectiveness of these aids and we realize that we should not depend upon such materials solely to do the teaching job. On the other hand these aids offer reinforcement, motivation, and opportunity for individual progression—all desirable qualities which should be recognized and utilized.

One additional conclusion from the USOE studies was the following:

3. "A writing component is likely to be an effective addition in a beginning program."

Several of the methods that produced superior decoding results

in first grade children included a considerable amount of writing. Perhaps receiving the perception of the symbol or word through the kinesthetic sense offered an additional avenue which strengthened recognition. Writing symbols for phonic elements and writing sight words should be helpful. No doubt a useful strategy in many cases would be to have children do more writing of sound-symbol correspondences and of difficult sight words.

Strategies in Regard to Auditory and Visual Discrimination

Auditory and visual discriminations are major factors in the perceptual processes. Studies indicate that these factors have special significance during the readiness and first grade periods.

Several investigators have found a high relationship between ability to recognize the letters of the alphabet and readiness for reading. Nicholson (*29*), Olson (*31*), and Gavel (*16*) for example, found that recognizing the letters was the best predictor of beginning reading success.

Durrell (*11*) concluded that auditory and visual discriminations of word elements appear to be more closely related to the acquisition of the primary grade reading vocabulary than is mental age.

Sister Nila (*30*) stated that the four chief factors related to reading readiness were auditory discrimination, visual discrimination, range of information, and mental age—in that order.

Hackney (*18*) and Benz and Rosemier (*3*) made studies of fourth grade children which involved word recognition skills. Several of the elements tested entailed the use of visual and auditory discrimination. Investigators in both cases divided their subjects into three groups—high, middle, and low. Hackney divided subjects on the basis of reading ability; Benz and Rosemier, on the basis of comprehension. In both cases the high group was significanly superior in the word recognition skills to the average and low groups. There was still opportunity for growth in average and low ability groups.

These and many similar studies support the following strategies in regard to the importance of auditory and visual discrimination:

1. The fairly new procedure of giving auditory and visual discrimination practice on letters of the alphabet to preschool children.

2. Giving auditory and visual discrimination practice on phonic elements early and throughout the first grade.

3. Placing continued emphasis upon auditory and visual discrimination of word recognition skills *throughout* the grades with students who still need help in using these skills.

Use of Context Clues and Analysis of Word Structure

All through the years phonics was considered to be the one technique which children should be taught to use in finding out the pronunciation of unrecognized words. However, in the late forties and early fifties two new techniques appeared and were widely accepted—those of using context clues and structural analysis.

With the almost exclusive emphasis on sound-symbol relationships in some of the recent approaches perhaps we might ask, "Are there some teachers who are losing sight of, or at least greatly deemphasizing, the context and structural analysis techniques? Should they?"

The use of context clues

Does the use of context clues have value in word recognition? Many primary teachers have been teaching the technique of finding unrecognized words through the use of context clues beginning early in first grade by asking children when they meet an unrecognized word, "What would it have to be to make sense in this sentence?"

While the use of context clues probably serves its greatest function in middle and upper grades, and while most of the research on this technique has been conducted at higher levels, primary teachers who have emphasized this procedure have found that through skillful comments and questions their pupils have developed a high sensitivity to the use of context clues in finding out the pronunciation and meaning of unfamiliar words. This should provide a good foundation for more extensive use of this technique in later grades.

Now to discuss some studies that indicate the usefulness of the context technique. Goodman (*17*) tested second grade children on reading lists of isolated words. Then he had them read text in which

these same words appeared. The study indicated that primary children can read many words in context which they cannot read from lists.

Hafner (*19*) tried teaching context clues to fifth graders for a month. This instruction caused them to make gains in comprehension.

McKee (*26*) found that the average child in fourth grade can use context clues to identify the meaning of an unrecognized word about once in three times.

Dunn (*10*) analyzed word identification skills used by fourth grade pupils to identify unfamiliar words. He found that context clues accounted for 30.5 percent of unfamiliar words identified.

Several people have attempted to devise classification schemes of different types of clues which can be found in context as aids in recognizing unknown words. Two of the most recently reported schemes will be mentioned.

Dulin (*9*) has grouped context clues which would probably be useful in the middle and secondary grades under two heads: "Format or Typographical Aids" and "Syntactical and Structural Aids." Under the latter he names contrast, synonyms and opposites, direct description, cause-effect relationships, tone or mood, and combinations of these.

Ames (*1*) made an analysis of 334 contextual situations in which college graduate students had been judged to have successfully determined the meanings of unknown words. A fourteen category classification scheme of contextual aids was developed from the readers' introspective reports of what portions of context had been used to determine word meanings. The investigator then made an analysis of the unsuccessful attempts to use context in applying the fourteen category classifications scheme developed from the successful use of 222 situations which elicited incorrect responses. He found that 93 percent of the incorrect responses could be categorized by the same scheme developed from the correct responses. [See *Journal of Reading*, 14 (October 1970), 5-8.]

Ames does not recommend the aids he has listed as priorities for teaching because his research is too limited. Besides, he believes that teachers should de-emphasize the use of classification schemes in

teaching students to use contextual aids. The various schemes are too unscientific at present, and there is a danger of children just learning labels or names of aids rather than making use of them. He suggests using examples informally to help children become "context-wise."

Some suggested strategies for teaching context clues follow:

1. By all means teach the use of context clues. Research indicates that it is a valuable technique in finding out the meaning and pronunciation of unrecognized words.

2. Most authorities recommend teaching the use of context clues through discussion whenever an opportunity is favorable rather than devoting special periods to context instruction.

3. It is advisable for the teacher to familiarize herself with several of the classification schemes of contextual aids and then present examples from these schemes to the children upon opportune occasions so that they may become aware of the great variety of aids that are available to them.

The use of structural analysis

Should we continue to teach structural analysis? Research in regard to the use of this technique is scant so we will have to resort to discussion for the most part in considering this topic.

Several years ago studies were made in regard to the frequencies of prefixes (*35*) and of suffixes (*36*) in Thorndike lists. A study was made with college students by Hunt (*21*) in 1951 in which he found a positive relationship between ability in structural analysis and scores in vocabulary and in reading comprehension.

Examination of research reveals but one recent study, reported by Hanson (*20*) in 1966. Hanson attempted to find when the teaching of the use of the variant word endings could most profitably be given. She concluded ". . . that the teaching of generalizations concerning the use of variant word endings is possible and effective in the second half of first grade."

With this brief presentation of research, we'll proceed with a discussion of other considerations.

First, let us consider the increased frequency of the changed structure of words. In our frantic search for words to express new

meanings in this rapidly changing world, and in our haste to say everything in the quickest possible way, we are adding prefixes and suffixes to thousands of words which heretofore have not been so modified. Furthermore we are compounding and hyphenating words at a tremendous rate as short cuts to various ways of saying things. If you will pause to count the number of words whose structure has been modified in current literature, you will find that from one-third to one-half have been changed from the stem form.

This increase in changed structure of word forms is apparent in textbooks, also. Beginning in third grade, structurally-changed words become long and often look difficult to children. On one page in the beginning of a third grade geography book, the reader may find *railroad, rainfall, mountainous, descendants, irrigation, reservation, canneries, agricultural, specializes, tropical, population, continent*—quite an array of variant word structures for just one page.

At the secondary level, multisyllabic words are highly prevalent and students benefit by studying foreign derivations as well as reviewing the skills of syllabication.

In primary texts there are problems. For example, in one first reader the vocabulary list in the back of the book shows *soup* and *thin* as the only new words on a certain page, but when the children read the page they find *helping, boxes, hardly*, and *scared* all met for the first time in the changed forms. Even though the children have been taught the endings, *ing, es*, and *ly*, they haven't attached them to these particular words before and many of them may need help in doing so. Particularly they may need help with the word *scare* which they are supposed to know because they had the compound word *scarecrow* in the primer.

Strategies in Regard to Analysis of Word Structure

1. It would appear to be good strategy for us not only to teach analysis of word structure at the present time but to stress it because of the increased usage of changed word forms in everyday reading and in textbooks, and because readers do not list structurally changed words as new words, after the element of change has once been intro-

duced and is attached to a known word which has not previously appeared in the text in its changed form.

2. Insofar as the recent study presented at the beginning of this section is an indication, it appears that we can begin to teach analysis of word structure effectually as early as second half of first grade.

Strategies in Regard to Phonic Generalizations

During the past few years phonic generalizations has been the subject of much research and discussion. I refer to those rules which we have taught for years such as "When two vowels are together in a one-syllable word the first one usually has the long sound and the second one is usually silent."

In 1963 Clymer (*8*) reported a study in which he selected forty-five generalizations and developed a word test from four widely used sets of readers in primary grades. He then set two criteria for judging the utility of the generalizations as applied to this primary vocabulary. Only eighteen of the forty-five generalizations met the criteria of usefulness in Clymer's study. Following this study, there appeared to be a hesitancy on the part of many to teach phonic generalizations at all, even though this was not the import of the Clymer research. The important contributions which the study made were those of causing us to question the value of generalizations which have been in the literature on reading for years, and to stimulate research to determine strategies for the selection and application of the most useful phonic generalizations.

Since Clymer's study, many additional studies have been made, and we now have a summary list of "Especially Useful Generalizations." This list was prepared by Lou E. Burmeister as a result of summarizing and comparing findings of seven recent studies designed to investigate the value of many commonly found phonic, structural analysis, and accent generalizations, plus extensive linguistic studies. (The list appears in the article which Dr. Burmeister wrote for this volume. See also reference 6.)

Both Winkley (*38*) and Emans (*14*) found that a higher utility of generalizations might be realized if the original statements of many of the rules used in the former studies were modified. For example, "When a vowel is in the middle of a one-syllable word, the

vowel is short." This generalization was found to have a much higher utility when modified to read "When a vowel is in the middle of a one-syllable word, the vowel is short except that it may be modified in words in which the vowel is followed by *r*."

To sum up strategies for the content of phonic generalizations: keep on teaching them, but teach only those that are especially useful, and feel free to revise the wording in some of the old ones to make them more inclusive and more useful.

As for methodology, the method most widely used appears to be the inductive method in which children are introduced to a rule through generalization from several examples rather than through memorization of the rule as an isolated item in itself to be applied later.

Some Viewpoints of Some Linguists

Linguistics is the scientific study of language. Linguists are concerned with the broader aspects of language in its several dimensions. Many linguists believe that reading teachers can make the best use of linguistics only by becoming more familiar with this subject as a whole—by taking courses in linguistics, reading and studying about linguistics, and applying their more extensive knowledge of language throughout their curriculum activities, including reading. Others have some rather specific ideas about things that might be done in teaching reading that would apply theories drawn from linguistic science. Still others have expressed ideas which they have interpreted from linguistic theory concretely into reading materials. All linguists feel that the science of linguistics has contributions to make to reading, but because of the wide variation of opinion in regard to the nature of this contribution it seems advisable to limit this section to "*Some* Viewpoints of *Some* Linguists."

The regular spelling approach

Most linguists who have prepared basal readers have made use of the regular spelling principle. They believe that it is of advantage to use word patterns of regular spelling as the content of beginning reading. These word patterns, such as *cat*, *hat*, and *sat*, introduce consonants as systematically as vowels. As many as twenty

patterns are used in some cases, and some irregular spellings which tend to pattern are also included, such as *right, sight,* and *might.* A valid word pattern is considered to be one which functions not only for identifying one-syllable words such as *sat,* but also for identifying embedded patterns in the stressed syllables of multisyllable words, such as *satisfaction.* In learning to decode, authors of linguistic readers believe that perception should proceed from the spoken word to the written word. When the pupil applies his word recognition skill he feeds back from the written word to the spoken word.

Of the many patterns used, Sabaroff (*34*) writes of five basic vowel patterns that she has discerned in linguistic materials and which she considers to be of great advantage to children in decoding words. She enumerates these five basic patterns as 1) the single vowel followed by a single consonant, *cat;* 2) the open vowel pattern, *go;* 3) the vowel with final *e* pattern, *ride;* 4) the double vowel pattern, *seed* and *rain;* and 5) the vowel with *r* pattern, *for* and *harm.* Then there are other special vowel-consonant combinations, *all, old, igh,* and multisyllable words. She feels that each "new pattern opens up a whole new array of words that draw on all previously learned information." The linguistic method, however, centers on the *pattern* as a whole, not on the vowel alone.

Structural linguistic approach

Structural linguistics is concerned with how language functions when used by persons who learned it as their native tongue. Speech is the primary concern of these linguists in the teaching of reading. They point out that single words rarely bear meanings, that strings of words work together to produce larger wholes in speech. Instead of beginning with words in reading, the structural linguist would begin with oral reading of the larger language patterns or sentences with emphasis on "melodies of speech." They feel that these melodies of speech are cues both to word recognition and meaning. Lloyd (*25*) says, "The ability to relate the melody of speech to the written page is the key to good reading." The "melodies" of speech fall under the general heading of *intonation* which in turn involves *stress, pitch,* and *juncture.* Some who have produced reading materials have made use of these elements.

Stress is the degree of loudness or softness with which syllables are uttered. According to linguists there are four levels of stress. In reading, stress may have a lot to do with questions as "*What* was she doing? What was *she* doing? What *was* she doing? What was she *doing*?"

Pitch refers to the rate of vibration of air while speaking. If air vibrates rapidly we have a high pitch; if slowly, a low. Linguists recognize four levels of pitch. Varying pitch can change a declarative sentence into a question as "He is going." "He is going?" It may change a declarative sentence into an exclamatory sentence expressing excitement. "Tom was coming to visit us." "Tom was coming to visit us!"

Juncture is the breaking off or interrupting of speech according to the structure of the sentence—the breaks or pauses in the succession of sounds. For example, "That lady is a queer bird" may have a different meaning if we pause after "That." "That, lady, is a queer bird." The linguists recognize four levels of juncture according to the length of pauses. Punctuation usually signals these pauses.

The chief skill contribution of intonation is in the area of meanings, but it also contributes to word recognition through the use of context clues to words that are necessary in completing meanings in sentence patterns.

On this topic of *intonation,* another use which an English professor has found for it in the field of remedial reading might be mentioned. Jean G. Pival has written an interesting article on "Stress, Pitch and Juncture: Tools in the Diagnosis and Treatment of Reading Ills." It appeared in *Elementary English,* 45 (April 1968), 458-463. The reader might be interested in learning how this teacher gains insights into the difficulties for her remedial readers and how she helps to remedy difficulties through observation and study of intonation patterns.

Strategies for Working with the New Dictionaries

There is a galaxy of new dictionaries being published, including many new picture dictionaries for use in kindergarten and primary grades, as well as simplified dictionaries for the middle grades. These

are great boons from the standpoint of establishing dictionary habits, but they are adding confusion to the already perplexing situation in word attack skills, largely because they are using new marking and pronunciation symbols and because they vary so much, one from another. They vary in diacritical markings, location of accent marks, as well as respellings and usage.

One thing that the several new dictionaries do have in common is what, at first sight, seems to be an overabundant use of the schwa sound—that very short vowel sound which occurs in unaccented syllables and is alike for all vowels, such as *a* in about, *e* in problem, *i* in engine, *o* in gallop, and *u* in circus. The new dictionaries mark this sound with a symbol looking something like an upsidedown *e*. Glancing through recent dictionaries, we may find from 10 to 20 or more of these schwa sound markings on a single page. Perhaps this reflects a modern speech tendency to slur the short vowels in unaccented syllables until all of them sound even shorter than a short *u*: for example, the two *e*'s in "Los Angeles," the first *i* in "Louisville."

What strategies may we use in meeting these new dictionary situations?

1. For one thing we had better give a lot more attention to teaching the schwa sound than we have in the past.

2. Let's provide classrooms with small sets of dictionaries from different publishers. Instead of having thirty dictionaries that are just alike for a class of thirty children, we should provide five sets of six each of dictionaries from different publishers. Let the children compare pronunciation keys, placement of accent marks, and respellings so that they will be able to use any dictionary at hand in their future school and life work.

Technologically Assisted Instruction

They tell us that technology is going to give us a great boost in improving instruction in all fields in the future, including reading. I will briefly describe some of the technological devices now in use in teaching reading, including decoding.

The talking typewriter is used in teaching reading in several places. The typewriter, itself, looks like an ordinary typewriter with

a large keyboard. Above the typewriter there is a screen for visual presentation and also a microphone. There is a recorder inside the machine which is computer-controlled. Both audio and visual responses are made through the use of slides and tapes.

The talking-typewriter is under experimentation in several public schools where it is being used in teaching nursery school children and older remedial students. For directed teaching the machine is programed with coordinated visual and audio instructions. For example, when the letter *A* appears on display and is sounded by the speaker, the child can depress the *A* key only. None of the other keys will work for him. If the speaker asks the child to spell *cat* he can depress only the correct letters in the correct order. None of the other letters on the keyboard will respond to his touch.

Results reported from Chicago, Philadelphia, and New York where the typewriter is being used with nursery school children indicate that the children learn to recognize the letters and their sounds. In some cases children can type out short stories dictated to them.

I shall mention the *electronic* teaching machine next as falling within the automated category and being used in teaching reading. (The tachistoscopes, rate controllers, accelerators, and other devices which we have commonly been calling "machines" will not be discussed in this section.) Most of the present electronic teaching machines look something like television screens in open-face boxes, with accompanying equipment consisting of an audiovisual system conveyed by the screen and speaker. Some have earphones and a typewriter. Materials used in the machines vary. Some companies prepare their own materials, some use commercial materials, some use a combination of their own materials and commercial materials. Therefore, the decoding skills are taught in different ways and with different emphases in the programs of different companies.

The Dorsett Machine is one of these teaching machines. It was used in a highly innovative situation, beginning in October 1969. According to an arrangement between the Dorsett Educational Systems and Texarkana Schools, the company agreed for a fee of $80 to raise the grade level of 200 ninth and tenth grade potential dropouts one grade level in 80 hours. The company agreed to be paid on a sliding scale—more if the student's level was raised in 60 hours or

less, less if it took 105 hours or more for the student to succeed, nothing if the student made no progress.

This was the first experiment in which a producer of equipment or publisher took over the teaching of remedial reading in a public school on a contractual basis paid by the school or an educational funding agency. Many other school systems have followed and are now engaging in accountability experiments.

The computer is now being used to teach reading to first graders at East Palo Alto, California. This is how the computer device works: there are sixteen terminals from the one computer which serve each of sixteen children. Each child works at the end of his particular terminal. While all children work simultaneously, each one may be working on individual material and progressing at his own rate.

The child has an opportunity to make three different kinds of responses: he may make a response on the picture screen with a light-projection pen or on the typewriter, or he may make an oral response according to the instructions given to him by the audio system of the computer or directions on the screen.

Insofar as decoding in word recognition is concerned, the computer will prove to be valuable in providing practice in recognizing whole words, phoneme-grapheme relationships, word-structure elements, syllabication, diacritical marks, respellings, and the application of useful generalizations. However, I think the greatest contribution of the computer to decoding may lie in the diagnostic area. By keeping an exact record of each child's achievements teachers will know on what particular elements or phases of decoding each child is weak, and if the computer's programed instruction cannot take care of these weaknesses, teachers will have to correct them.

The most exciting innovation of the near future will probably be cartridge TV which will permit the recording and playback of televised material through conventional television sets from small, easy to use cartridges or discs inserted in portable electronic devices attached to the antenna ends of television sets. Everything necessary will come in one package—the cartridge. When ordered in quantities of 50 or more it is estimated that the cartridges—prerecorded—will cost $30 or less. A few companies will have these cartridges available

in 1971; others will be producing them in 1972. These TV cartridges will have many innovating classroom uses in science, speech, drama, music, and reading.

Insofar as the decoding skills are concerned, two possibilities might be mentioned. For remedial homework they should be very useful. For example: the teacher may be televised teaching lessons which can be used by children independently and which are based on various aspects of decoding which usually cause difficulty. When children experience one or more difficulties, they can be given the cartridges for the various lessons, one by one, to be plugged into their home TV sets and used for reinforcement.

In practice teaching it would be very helpful if student teachers could view and analyze cartridge TVs of their own teaching of different decoding skills; and it would be of great assistance both in teacher training and inservice courses if personnel in both groups might view and discuss the teaching of several master teachers, as they teach lessons on different aspects of the decoding program. The cartridge TV plan would be easy to transport and sufficiently economical to facilitate a sizable number of such viewings.

We do not know what the wonderful future of technology may hold for us. Whatever it holds, all of us will welcome assistance in helping children to master the foundation on which all other parts of the reading structure depend for support—that foundation skill area of decoding written and printed symbols.

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Applying Research on Word Analysis Skills to Classroom Instruction in Intermediate Grades

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THE APPLICATION of word recognition skills to instruction in the intermediate grades is a question that is academic to say the least. Most of the textbooks on reading instruction and all of the basal readers have organized the skills in some sequential order for instructional purposes. It is apparent from a study of these two sources that above grade level three the instructional process involves a refinement of skills previously taught and the introduction of a relatively small number of new skills. A study of the level of acquisition of the skills from grade to grade can be described as generally linear. In this paper, research will be examined in regard to word recognition skills, and special application of this research to the intermediate grades will be made.

Research on Word Recognition Skills

A recent study (*4*) based on a population of 947 pupils representing 44 classes at instructional levels 2, 3, 4, and 5 was concerned with the achievement in basal reading skills of mentally handicapped, intellectually normal, and intellectually superior pupils. The results indicated some interesting conclusions. The phonetic analysis skills, evaluated from the least to most complex, were: associating vowel letters and sounds, associating consonant letters and sounds, associating consonant digraphs and sounds, associating consonant blends and sounds, identifying syllables in orally and visually presented short words, identifying syllables in visually presented short words, identifying syllables in orally and visually presented long words, identifying syllables in visually presented long words, and

spelling patterns. The hierarchical sequence among the structural analysis skills studied were: identifying components of compounds, identifying root endings and suffixes, identifying roots and prefixes, identifying roots and multiple affixes, locating roots by using root-change rules, and changing roots by using root-change rules.

The retarded group (IQ within the range of 50-80) in general, showed no significant change in phonetic analysis ability from reading level 2-5, although there was a slight linear trend. The structural analysis skills, in general, showed a significant linear trend over the four instructional levels.

The normal group (IQ within the range of 90-110) showed a marked linear trend in the development of the phonetic and structural skills. In both skill areas the percent of the total possible score increased markedly from reading levels 2-5.

The superior group (IQ within the range of 120 or higher) also showed a marked linear trend in the development of the phonetic and structural skills tested. The pattern in general for this group was one of increments between reading instructional levels which decreased in size.

Before we come to any conclusion as to the application of the above research, a further look at word analysis skills in relation to comprehension is appropriate. Studies of teaching methods with various levels of student ability have been conducted by Dolan (*6*) and others, but these studies will not be discussed here because of the inherent problems in comparative methods studies and the confused conclusions and applications which often result.

Two studies that should be of value for an understanding of the reading process in the intermediate grades are represented by the works of Benz and Rosemier (*3*) and Dunn (*7*).

Benz and Rosemier employed two methods to determine the relationship between performance on tests designed to measure certain reading skills and their relationship to reading comprehension at the fourth grade level ($N = 1490$).

One method involved observations of the ways in which children of high comprehension levels differed from children at lower levels. The second method of determining the relationship between performance on skill and reading comprehension involved the com-

putation of partial correlation coefficients. Each fourth grade class (N = 55) was administered the Gates (1958) Level of Comprehension Test, Type LC, to determine reading comprehension and the Bond, Clymer, Hoyt (1955) Silent Reading Diagnostic Tests, Form D-A, to ascertain proficiency in syllabication, locating root words, words in context, word elements, beginning sounds, and rhyming sounds.

The statistical test of analysis of variance was used to determine the differences between the three comprehension levels of readers on each of the six word analysis skills. The results indicated that high achievement readers tend to perform better than average readers, and average, better than low. Partial correlation coefficients between each of the six word analysis skills and comprehension were computed over all levels, with the effects of the other five statistically removed. The skills of context, rhyming sounds, and syllabication attained the higher partial coefficients with reading comprehension. Multiple regression analysis of the six analysis skills with reading comprehension also yielded the same results.

Another study similar to that of Benz and Rosemier was done by Dunn. Dunn's intent was to analyze the word identification skills used by fourth grade students to identify unfamiliar words. One hundred, fifty-five students were selected from a population of 732 on the basis of their inability to recognize words from a sight word test of 100 words taken from the Durrell-Sullivan Reading Vocabulary Test. Twenty test sentences were constructed so that context and word identification clues would suggest the unfamiliar word. A record was kept to indicate which clue enabled the student to correctly identify the unfamiliar words.

Analysis of Dunn's data indicated that exposure of context clues alone accounted for 30.52 percent of unfamiliar words identified—the addition of configuration clues accounted for a percentage increase to 41.54 percent, initial phonic element of 54.61 percent, final phonic element to 64.74 percent, and expose of the whole word 90.22 percent. The conclusions reached by the investigator were that context clues made the greatest contribution to the identification of unfamiliar words, followed by initial and final phonic elements.

Reading authorities and linguists have stated that context is an important determinant of word meaning and that the use of context

clues should be a part of direct reading instruction. Attempts have been made to classify types of contextual aids that are used by readers in order to determine the meaning of unknown words in context.

Artley (*2*) and McCullough (*8*) both devised classification schemes, but the schemes were not directly based on research evidence.

Siebert (*11*) asked college students to replace blanks in passages with words of the appropriate meaning, but he did not ask them to explain how they were making use of the contextual aids.

Deighton (*5*) devised a classification based on passages he had studied for possible contextual aids, but he collected no data from readers as to how they were using context.

Ames (*1*) sought to determine from the verbal responses of mature readers, the types of contextual aids they were using in replacing nonsense words in passages with words of appropriate meanings, and then to classify these contextual aids into a classification scheme.

In a modified replication of Ames' study using his classification scheme, Quealy (*10*) found: that Ames' classification scheme, developed with graduate students, is also valid for senior high school students; that intellectual ability, as measured by standardized tests, is highly related to effective use of contextual aids; and that the form classes to which words belong should be considered in designing instructional material using contextual aids.

In a recent study by Olson et al (*9*), an attempt was made to identify how effectively sixth grade students used context skills in reading science and social studies material.

Thirty sixth grade students, reading at grade level, from three white, middle class urban schools served as subjects for the study. Ninety students from the three schools were screened to find a sample of students who missed 50 percent or more of the social studies words on a vocabulary test comprising the words thought to be unknown by the students from the reading selections to be used in the evaluation. Each of the thirty students was tested individually on two reading selections. The science selection, "The Atomic Clock," and the social studies selection, "Voices Across the Land," were taken from the *Reader's Digest*, Reading Skill Builder, Book 6.

Each student read the two selections silently. The examiner then asked the student to give the meaning of the word previously unknown in the vocabulary test. Verbal responses to the examiner's question, "How do you know what the word means?" were recorded. A tabulation of the number of correct and incorrect responses was made, and the types of context clues used by the subject were categorized according to Strang, McCullough, and Traxler's classification (1961). Prior to the testing, the twenty-five words used for the analysis were classified according to the same scheme.

Analysis of the data indicated that 96.7 percent of the students were able to give the meaning of more than 50 percent of the words by using context skills. Thirty-two percent of the time the students used the clues that the examiner had expected them to use based on the types of clues used in the passages. Regardless of what clues were given in the passages, previous experience was the clue most frequently indicated by the students as the reason for knowing the meaning of the word.

Generalizations

With a moderate degree of caution, it can be generalized that students of varying intellectual and achievement levels learn the skills of word identification in the hierarchical sequence in which they are taught with predictable efficiency, that the degree of achievement and application of word identification skills to the reading act is generally linear in nature, and that the apparent importance of the sequentially taught skills changes in the contribution made to achievement at any point in the linear development. It must be remembered, however, that the reading act is a continuous process, and word identification skills evaluated at the intermediate grade level are contingent upon the cumulative effect of the horizontal and vertical development of the interactions among the skills.

Discussion

The research on word analysis skills has meaning only if it is viewed in relation to the developmental sequence of the primary grades. As students grow in their ability to use skills taught and acquire new skills which are applied to increasingly complex reading

materials, new dimensions of skill application appear. One of the primary skills for word analysis which becomes of increasing importance at the intermediate grade level is that of context clues. It is apparent, however, that the ability to use this skill dimension is contingent upon and directly related to the skills previously acquired in the sequential structure. The assumption that this dimension of word analysis skills should be taught to all intermediate grade students would be incorrect without a clear understanding of its placement in the linear development of all of the other skills and its direct dependence upon them.

The concept of the reading act which implies that children in the primary grades apply all of the word analysis skills, including context clues, with equal effectiveness, but in less difficult material both in content and reading vocabulary is probably incorrect. The results of the research would lead one to hypothesize that context clues are used most effectively after the students have acquired the more basic skills of phonics. It is probably within this area of word analysis skills (context clues) that teachers in the intermediate grades should direct more of their instructional efforts if they wish to improve the reading abilities of their students.

The research available for use in drawing any real conclusions about word analysis skills at the intermediate grade levels is limited. The research is primarily suggestive of what may be happening in the reading act but it does offer a framework within which we can theorize. The results of the studies presented and generalizations drawn in this paper can be of use only if we follow Hebb's suggestion, that "Theories are like women; it is more important that they be fertile than good."

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Content of a Phonics Program Based on Particularly Useful Generalizations

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FOR A LONG TIME teachers and children have felt overburdened with vast numbers of phonic generalizations. Teachers were aware that many of these "generalizations" had limited usefulness, for they applied to only a few words that the children read. Other generalizations appeared to be invalid, in that there seemed to be more exceptions to them than there were instances of application. When queried by an observant youngster, the teacher too frequently repeated, "That word, Jerome, is an exception to the generalization."

Because of this situation several studies have been made to ascertain both the usefulness and validity of generalizations. Among these studies are those reported by Bailey (*1*), Burmeister (*2, 4, 5*), Clymer (*8*), Emans (*9*), Fry (*10*), and Oaks (*12*).

The purpose of this paper is to list particularly useful generalizations. These were found to be valid in the above studies and/or were inductively formulated in newer extensive linguistic studies reported by the author (*3, 5, 6*), and revealed in a study (*7*) unpublished at the time this volume went to press.

Authors of all of the studies agree that there is a need to teach fewer generalizations than were taught in the past. It is possible to classify the particularly useful and valid generalizations into a very few categories:

Consonants—Single (*b,c,d,f*), blends (*bl, cl, dr, sm, spl*), digraphs (*ph, sh, ch, th, ng, ck*), some silent letters (*-mb, -lm, kn-, wr-*, and two like consonants).

Vowels—single (*a, e, i, o, u, y*), clusters (*ai, oa, oi, ou, ei*), final *single* vowel consonant—*e* (*ape, ice*), the *r* control (*car, her, hear, care*), and the consonantizing of *i* in the following situations: *tio, tia, cio, cia, sio* (mansion, action, vision, fusion, caution).

Phonic syllabication in the following graphemic patterns: vowel-consonant-consonant-vowel, vowel-consonant-vowel, final consonant-*l-e*.

Particularly Useful Grapheme (Printed Symbol) to Phoneme (Sound) Relationships

Note: A *phoneme* is the smallest unit of sound; a *grapheme* is the symbol we use to represent the sound. The word *cat* has three phonemes and, therefore, three graphemes. The word *main* has three phonemes and, therefore, three graphemes (one grapheme *ai* is spelled with two letters). In this paper grapheme to phoneme relations are described *within* morphemes only (i.e., not between morphemes). Thus syllabication generalizations and grapheme to phoneme relationship dependent upon divisions made because of prefixes, roots, and suffixes are not included.

I. Consonants
   A. Single consonants
      1. Each consonant (except *c*, *g*, *s*, and *x*) is highly consistent in representing one sound.
      2. When *c* or *g* is followed by *e*, *i*, or *y*, it represents its soft sound (city, certain, cycle; gem, agile, gym). When followed by anything else, or nothing, it represents its hard sound (cake, coat, cup, clash, cram, attic; game, goat, gum, glass, grip, flag). Omit *ch* and *gh*.
      3. The letter *s* usually (86 percent of the time) represents its own sound (swim, soft, solo).* Its next most frequent sound (/z/ – 11 percent) is found in words such as resort, raisin, music, desire, treason. Omit *sh*.
      4. The letter *x* represents the sounds found in the following words (/ks/ or /k/ + /s/): ax, box, tax; foxy, taxi, vixen, and (/g/ + /z/): exact, exempt, exist, example.
   B. Double consonants (and triple consonants)
      1. Consonant blends—When two unlike consonants appear side-by-side, usually the sound represented is a blend of the sounds represented by each (*bl*ock, *cl*own, *dr*own, *gr*ow, *sm*ile, *sp*ook, *sp*lash, etc.)

* Unless otherwise stated, percentages are taken from the 17,310 words used by Hanna et al (*11*).

2. Consonant digraphs—Although spelled with two consonants, consonant digraphs function as single consonants. They are *ch, sh, th, ph, ng,* and *ck. Ch* represents three sounds: /ch/ child, chop – 63 percent, /k/ chorus, christen, orchid – 30 percent, /sh/ chef, chute, mustache – 7 percent; *sh,* as in should, ship, shed; *th* represents two sounds, voiced, as in this, they, rhythm – 74 percent, and voiceless, as in think, thick, youth – 26 percent; *ph* represents an *f* sound, as in elephant, photo; *ng* as in sing, wing, young; *ck* represents a *k* sound, as in chick, package, cuckoo. (*ck* is really two like consonants together, in which *c* represents the *k* sound, and is silent. See 3a.)
3. Silent consonants
   a. Like consonants—When two like consonants are side-by-side, they represent only one sound. (This is not true of *cc* or *gg* when followed by e, i, or y – success, suggest.) E.g., ball, egg, guppy, guerilla, tattoo.
   b. Unlike consonants—When certain consonants are side-by-side in the same syllable, only one sound is represented. This is true of the following pairs (the only pairs which occur at least once per thousand running words – See Appendix A): *initial kn-,* as in kneel, knot; *initial ps-,* as an psalm, pseudo; *initial wr-,* as in wrap, write; *final -dg*(e), as in dodge, bridge; *final -gn,* as in sign, reign; but also *initial gn-,* as in gnat, gnome; *final -lm,* as in calm, palm; *final -mb,* as in bomb, comb; *final -tch,* as in catch, witch.

II. Vowels
   A. Definitions: the five vowels (*a, e, i, o, u*) and two "semivowels" (*y* and *w*) are used singly and in pairs and in the final vowel (consonant) *e* position to represent a variety of sounds. The most common sounds are the vowel's own short sound (h*a*t, p*e*t, h*i*t, h*o*t, h*u*t), the long sound (m*a*in, m*ea*t, s*i*ze, o*a*k, c*u*te), a schwa (*a*bout, camel,

pencil, lemon, circus, marriage), an *r* modified sound (car, care, her, hear, for), a diphthong (*ou*t, c*ow*, c*oi*n, b*oy*), a *broad a* – or *circumflex o* – *a*uto, *aw*ful, b*a*ll; a long and short double *o* (r*oo*ster, b*oo*k).

B. Single vowel graphemes

1. Closed syllable (syllable that contains a single vowel and ends with a consonant)—A single vowel in a closed syllable represents its own short sound, its *r* controlled sound when it is followed by an *r*, or a schwa sound.
2. Open syllable (syllable that contains a single vowel in a final position)—If the single vowel in an open syllable is an *e*, *o*, or *u*, it usually represents its own long sound; if the vowel is an *a*, it may represent a schwa – 53 percent, a long *a* sound – 32 percent, or a short *a* sound – 12 percent; if the vowel is *i*, it may represent a schwa – 49 percent, a short *i* sound – 37 percent, a long *i* sound – 14 percent.
3. Final *y*—If a word ends with a consonant + *y*, the *y* will represent a long *i* sound if the word is monosyllabic (try, my, thy, cry), but the *y* will represent a short *i* (long *e*) sound if the word is polysyllabic (baby, balcony, century, city). (See Appendix B.)

C. Vowel pairs

There is no generalization that can be taught to cover a majority of instances of vowel pair grapheme to phoneme relationships. A particular generalization, however, may be taught to cover specific vowel pairs. The vowel pairs listed below need description in a phonics program. They are the only pairs that occur at least 50 times in the 17,310 most common English words selected by Hanna et al. (Please refer to Appendix C for a description of all vowel pair graphemes and their corresponding phonemes in these 17,310 words.)

1. First vowel long, second vowel silent—If the vowel pair is *ai*, *ay*, *ea*, *ee*, *oa*, or *ow*, usually the first vowel represents its own long sound, and the second vowel is silent (main, pay, meat, meet, boat, crow). But *ea* often

represents a short *e* sound (bread), and *ow* often represents a diphthong (cow).

2. Diphthongs—The vowel pairs *oi* and *oy* represent a diphthong (coin, boy). The pairs *ou* and *ow* often represent a diphthong (mouse, cow). However, when *ou* is in a suffix, it represents a schwa sound (dangerous, wondrous).
3. Broad *a* (circumflex *o*)—The pairs *au* and *aw* represent the "broad *a*" sound (auto, awful), just as does *a* when followed by *ll* (ball, fall).
4. Long and short *oo*—The pair *oo* represents two sounds (rooster, book).
5. *Ei* and *ie*—The most common sound *ei* represents is *long a* (neighbor, weigh). Otherwise *ei* and *ie* represent the following sounds, in order of frequency: long *e* (c*ei*ling, fi*e*ld), short *i* (for*ei*gn, lass*ie*), long *i* (s*ei*smic, d*ie*).
6. *Ey* represents a short *i* sound, as in hon*ey*, or a long *a*, as in th*ey*.
7. *Ew* represents a long *u* sound, as in n*ew*s, or an *ōō* sound, as in fl*ew*.

D. Final vowel-consonant-*e*

1. When a word ends with a *single-vowel*, single consonant, and an *e*, the *e* is silent, and the vowel represents its own long sound. The validity level for each vowel is: *a* – 78.9 percent, *e* – 87 percent, *i* – 61.1 percent, *o* – 85.6 percent, *u* – 78.3 percent.
2. Exceptions
   a. There are 68 primary level words which are exceptions to this generalization (See Appendix D).
   b. Groups of exceptions are (1) *i-e* words in which the *i* represents a short *i* sound: l*i*ve, g*i*ve, off*i*ce, prom*i*se; (2) *i-e* words in which the *i* represents a long *e* sound: mar*i*ne, magaz*i*ne; (3) *a-e* words in which the *a* represents a short *i* sound, especially *-ace*, *-age*, *-ate* words: surf*a*ce, pal*a*ce; aver*a*ge, cour*a*ge; sen*a*te, delic*a*te (5).

E. Consonantizing of *i*

When *io* or *ia* follows *c*, *t*, or *s*, the consonant plus the *i* combine to represent a /sh/ or /zh/ sound: ra*ci*al, so*ci*al; men*ti*on, cau*ti*on; pen*si*on, man*si*on; vi*si*on, fu*si*on.

III. Phonic syllabication

(Phonic syllabication generalizations are used only when morphological syllabication generalizations do not apply—*i.e.*, prefix/root/root/suffix.)

A. Determination of a syllable

1. There is one, and only one, vowel phoneme (sound) in a syllable.
2. There is one, and only one, vowel grapheme (symbol) in a syllable. Vowel graphemes are a) single vowels—c*a*p, m*e*, ba-b*y*; b) vowel pairs, or clusters—m*ai*n, r*ou*nd, b*eau*tiful; c) a final vowel (consonant) *e*—cak*e*, P*e*t*e*, hom*e*.

B. Generalizations

1. Situation: two vowel graphemes separated by two consonants (*v c c v*)

When two vowel graphemes are separated by two consonants, we divide between the consonants: as-ter, sil-ver, tar-get, but-ler.

It is suggested that words containing two like consonants between two vowel graphemes not be included in this generalization (except *cc* and *gg* when followed by *e*, *i*, or *y*) because only one sound is represented by these two consonants. Instead words containing two like consonants might be included in the *v c v* generalization [rab(b)-it, car(r)-ot, bal-(l)loon, e-(s)say].

2. Situation: two vowel graphemes separated by a single consonant (*v c v*)

When two vowel graphemes are separated by a single consonant, the consonant may go with the first or the second vowel. In primary level words, it is more likely to go with the first vowel; in more difficult words, it tends to go with the second vowel. At all levels, there

is about a 45-55 percent split: liz-ard, lem-on, wag-on, ra-zor, spi-der, ti-ger (7).

3. Situation: word ending in a consonant-*l-e*

   When a word ends in a consonant-*l-e*, these three letters compose the final syllable (bi-ble, ea-gle, bun-dle, tur-tle, noo-dle).

Implications for Teaching

The teacher should always keep in mind that phonics deals with relationships between printed symbols and sounds and that phonics will be of no help to the reader interested in getting meaning unless he orally knows the word being attacked. Researchers often talk about paired associates. It might be helpful to think of phonics as part of a *triple associate* skill. The printed symbol triggers the sound (paired level), and the sound triggers the meaning (triple associate level). For example, the reader sees the word *cat*; he responds orally /kat/; he remembers that word to be the oral symbol for a fluffy four-legged animal with a tail—or for a woman who scratches and claws. Unless the triple associate relationship is present, utilizing phonic skills can be busy work.

Teachers no longer need to feel confused because of the content of a phonics program. Generalizations which should be taught are few in number. And, as has been noted in the above list, flexibility of approach is often the keynote: the learner should be taught to try one pronunciation, and if that doesn't bring about oral recognition of the word, he should try another in order to reach the paired and triple associate level.

APPENDIX A

Silent consonants: Two unlike consonant letters used to represent one consonant sound. Only those are listed which occurred six or more times in Hanna's 17,310 words.

grapheme	*phoneme*	*examples*	*position in syllable*	*number of instances in 17,310 words*
bt	t	debt, doubt	final	11
dg	j	dodge, bridge	final	51
dj	j	a-djust	initial	13
gh	f	e-nough, laugh	final	8
gh	g	ghost, ghastly	initial	9
		burgh	final	1
gn	n	gnat, gnome	initial	5
		sign, reign	final	27
kn	n	kneel, knot	initial	37
lm	m	a-lmond	intial	2
		alms	medial	2
		calm, palm	final	13
lk	k	chalk, talk	final	14
mb	m	bomb, comb	final	27
mn	m	hymn, autumn	final	7
rh	r	rhyme, rhetoric	initial	16
ps	s	psalm, pseudo	initial	19
tch	ch	catch, witch	final	61
wh	h	who, whole	initial	12
wr	r	wrap, write	initial	48

Burmeister, 1970.

APPENDIX B: Frequency and percent of occurrence of each phoneme for each single-vowel grapheme according to syllabic position and accent pattern

grapheme	phoneme	example	Syllabic Position											
			open syllable						closed syllable					
			Total		Accented		Unaccented		Total		Accented		Unaccented	
			f	%	f	%	f	%	f	%	f	%	f	%
a	ā	halo	860	32.4	849	93.0	11	.6	142	2.8	139	4.1	3	.2
a	ə	very	0	0	0	0	0	0	64	1.3	64	1.9	0	0
a	a	baboon	304	11.5	1	.1	303	17.4	3888	76.6	2485	73.4	1403	82.7
a	ä	grm	58	2.2	49	5.4	9	.5	460	9.1	383	11.3	77	4.5
a	ə	canal	1418	53.4	0	0	1418	81.5	19	.4	0	0	19	1.1
∑a			2654		913		1741		5078		3382		1696	
e	ē	senior	1740	90.4	345	97.7	1395	88.8	25	.4	18	.6	7	.2
e	ə	hero	0	0	0	0	0	0	64	1.0	63	2.2	1	.03
e	e	bet	44	2.3	1	.3	43	2.7	3272	48.3	2419	85.2	853	21.7
e	ē	after	6	.3	1	.3	5	.3	1660	24.5	0	0	1660	42.2
e	ə	angel	115	6.0	0	0	115	7.3	648	9.6	1	.04	647	16.5
e	ə	her	0	0	0	0	0	0	313	4.6	288	10.1	25	.6
le	'l	able	0	0	0	0	0	0	620	9.2	0	0	620	15.9
∑e			1924		353		1571		772		2840		3932	
i	ī	china	395	14.2	294	94.8	101	4.1	159	3.4	158	5.7	1	.1
i	ɪ	in	1039	37.3	0	0	1039	41.9	4307	91.5	2417	86.9	1890	98.0
i	ə	pencil	1332	47.8	0	0	1332	53.7	15	.3	0	0	15	.8
i	ē	ski	23	.8	16	5.2	7	.3	15	.3	13	.5	2	.1
∑i			2789		310		2479		4709		2781		1928	
o	ō	so	1629	92.0	545	97.0	1084	89.7	247	5.8	208	9.5	39	1.9
o	ȯ	cord	0	0	0	0	0	0	312	7.4	262	12.0	50	2.4
o	ŏ	dot	0	0	0	0	0	0	1557	36.7	1425	65.0	132	6.4
o	ô	off	0	0	0	0	0	0	123	2.9	102	4.7	21	1.0
o	ə	carton	114	6.4	0	0	114	9.4	1497	35.3	0	0	1497	73.0
o	ə	humor	0	0	0	0	0	0	268	6.3	0	0	268	13.1
e	ə	son	0	0	0	0	0	0	112	2.6	110	5.0	2	.1
∑o			1770		562		1208		4243		2192		2051	
u	ū	union	770	82.6	320	82.3	450	82.9	44	2.3	29	2.3	15	2.3
u	ʉ	burn	0	0	0	0	0	0	203	10.6	188	14.7	15	2.3
u	ŭ	cup	2	.2	0	0	2	.4	1210	62.9	996	77.8	214	33.3
u	ə	submit	42	4.5	0	0	42	7.7	255	13.3	0	0	255	39.7
u	o͝o	truth	82	8.8	69	17.7	13	2.4	11	.6	11	.9	0	0
u	o͝o	put	36	3.9	0	0	36	6.6	164	8.6	52	4.0	113	17.6
∑u			932		389		543		1923		1280		643	

Burmeister, 1969b.

APPENDIX C: Frequency and percent of occurrence of each phoneme for each single vowel-pair grapheme

Grapheme		*Phonemic Behavior*			
Name	*Frequency*	*Pronunciation Key*	*Example*	*Frequency*	*Per Cent*
ae	(6)	ē	algae	5	83.3
		e	aesthetic	1	16.7
ai	(309)	ā	abstain	230	74.4
		â	air	49	15.6
		ī	mountain	15	4.9
		ə	villain	9	2.9
		e	again	4	1.3
		ă	plaid	1	.3
		ĭ	aisle	1	.3
ao	(2)	ô	extraordinary	2	100
au	(178)	ô	auction	167	93.8
		o	chauffeur	5	2.8
		ä	laugh	4	2.2
		ə	epaulet	1	.6
		ā	gauge	1	.6
ay	(137)	ā	gray	132	96.4
		ĭ	kayak	3	2.2
		e	says	1	.7
		ĭ	yesterday	1	.7
aw	(77)	ô	lawn	77	100
ea	(545)	ē	east	275	50.5
		e	weapon	140	25.7
		ę	ear	49	9.0
		û	earth	31	5.7
		â	bear	13	2.4
		ä	hearty	18	3.3
		ā	great	14	2.6
		ĭ	guinea	2	.4
		ə	sergeant	3	.5
ee	(290)	e	sleet	248	85.5
		ę	peer	36	12.4
		ĭ	been	6	2.1
ei	(86)	ā	reign	34	40.0
		e	deceit	22	25.6
		ĭ	foreign	11	12.8
		ī	seismic	9	10.5
		â	their	5	5.8
		ə	sovereignty	2	2.3
		ę	weird	2	2.3
		e	heifer	1	1.2
eo	(15)	ə	pigeon	10	66.7
		e	leopard	3	20.0
		ē	people	2	13.3
eu	(40)	ū	feud	29	72.5
		û	amateur	6	15.0
		o͞o	sleuth	4	10.0
		o͝o	pleurisy	1	2.5

Grapheme		*Phonemic Behavior*			
Name	*Frequency*	*Pronunciation Key*	*Example*	*Frequency*	*Per Cent*
ey	(69)	ĭ	honey	40	58.0
		ā	convey	14	20.3
		ī	geyser	8	11.6
		ē	key	6	8.7
		â	eyrie	1	1.4
ew	(64)	ū	news	39	60.9
		o͞o	flew	22	34.4
		ō	sew	3	4.7
ia		ĭ	carriage	3	60
		ə	parliament	2	40
ie	(156)	ē	thief	56	35.9
		ĭ	lassie	30	19.2
		ī	die	26	16.7
		ə	patient	23	14.7
		e̬	cashier	17	10.9
		e	friend	4	2.6
oa	(138)	ō	road	129	93.5
		ô	broad	9	6.5
oe	(22)	ō	foe	13	59.1
		ē	amoeba	5	22.7
		o͞o	shoe	4	18.2
oi	(102)	oi	moist	100	98.0
		ə	porpoise	2	2.0
oo	(315)	o͞o	lagoon	185	58.7
		o͝o	wood	114	36.2
		ō	floor	9	2.9
		u͝	blood	7	2.2
ou	(815)	ə	rigorous	336	41.2
		ou	out	285	35.0
		o͞o	soup	54	6.6
		ō	four	47	5.8
		u͟	touch	30	3.7
		o͝o	your	25	3.1
		û	journey	22	2.7
		ĕ	glamour	1	.1
oy	(50)	oi	convoy	49	98.0
		ī	coyote	1	2.0
ow	(250)	ō	own	125	50.0
		ou	town	121	48.4
		o͝o	knowledge	4	1.6
ue	(43)	ū	due, cue	27	62.8
		o͞o	clue	16	37.2
ui	(34)	ĭ	build	16	47.1
		o͞o	fruit	10	29.4
		u͟	suit	8	23.5
uo	(2)	o͞o	buoyant	2	100
uy	(3)	ī	buy	3	100

Burmeister, 1968b.

APPENDIX D: Primary level words which are exceptions to the phonic generalization "When a word ends in single vowel-consonant-*e*, the *e* is silent and the vowel represents its own long sound."

a-e: have; are; purchase; aver*age*, cour*age*, man*age*, mess*age*, pass*age*, vill*age*, advan*tage*; surface, palace; senate, separate

e-e: were; there, where; college

i-e: live, give, office, active, notice, native, justice, practice, service, promise, examine, favorite, determine, opposite, representative; machine, magazine, police, automobile; engine

o-e: purpose, welcome; lose, improve, move, movement; remove, whose; gone; above, come, become, done, love, lovely, none, some, something, sometimes, somewhat, somewhere; one

u-e: rule, conclude, include; measure, pleasure, treasure; sure, assure

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Burmeister, 1969a.

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Research on Reading Comprehension: Implications for the Elementary Teacher

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TO UNDERTAKE the task of interpreting research related to reading comprehension and summarizing implications of this research for classroom teachers is a frustrating venture. Why frustrating? Is it because of the immense volume of research to be hunted out and digested? No, not at all. Research on reading comprehension is not now being published in quantity nor has it accumulated through the years in massive amounts. Is the research, then, controversial and highly equivocal? No, that is not the case either. Compared to the emotionally charged topic of how to teach the word recognition skills in beginning reading programs, for instance, there is little inclination evident on the part of those interpreting research related to comprehension to be argumentative. Some stated positions tend to be more conservative than others, but there is no real polarity in discussing comprehension. Well, then, why is comprehension such a frustrating topic to write or speak about? The main reason is that every major personality in the field of reading has at one time or another addressed himself to the topic, raking over the limited number of studies reported in the literature and stating the rather few implications that are in accord with available research findings. To attempt to match, let alone improve upon past efforts, seems a little presumptuous.

Just a few of the more recent treatments of the topic that are directed to elementary teachers can be mentioned here. In *Reading in the Elementary School*, George and Evelyn Spache (*4*) include a chapter called "Developing Comprehension and Critical Reading Skills," which concludes with a succinct summary of fourteen statements conveying implications for classroom practice. Harris (*3*), in *How to Increase Reading Ability*, states implications for teaching in

two chapters on "Developing Understanding in Reading." Stauffer (*5*, *6*), was so energized by contemplating the role of comprehension in reading that he published two books devoted primarily to the topic. Between them, these two books total over 900 pages. Though there may be a shortage of empirical research on comprehension, as some reviewers contend, there is no shortage at all of analytical discussion on the topic.

Some Recent Studies of Reading Comprehension

Reports of the research that has been done have been fairly accessible to any teacher interested in reading them. Certainly, the International Reading Association has not kept under a bushel the light emanating from research on comprehension. The annual summaries of research published in the winter issues of the *Reading Research Quarterly* each year since 1965 provide an annotated bibliography of nearly all published research having a direct bearing on the subject of reading comprehension. For added measure, the Summer 1968 issue of the *Reading Research Quarterly* presents detailed reports of two of the most recent and significant studies on comprehension (*2*, *8*).

In *The Reading Teacher* for May 1969, Weintraub (*7*) analyzed several studies dealing with "The Question as an Aid to Reading." In *Psycholinguistics and the Teaching of Reading,* there is a chapter titled "An Operational Definition of Comprehension Instruction" by Bormuth (*1*). In citing these four IRA publications, no attempt has been made to mention all articles and reports on comprehension, but these are the ones chosen to comment upon in this effort to relate research and classroom practice.

Although various authors and researchers have used differing terminology, there does seem to be a reasonable consensus regarding certain relationships in reading. Word recognition, or the ability to turn printed symbols into words on the part of the reader, is assumed to be a prerequisite in any attempt to differentiate readers on the basis of how they differ in understanding what they read. A knowledge of word meanings can be set apart as a step between sound production and the understanding of contextual reading matter.

Also a distinction is drawn between 1) literal comprehension, which is getting the author's stated message; 2) the ability to interpret what the author implies; and 3) the analytical, evaluative type of reading labeled "critical reading" or "creative reading" by some writers.

The Wolf, King, and Huck study (*8*) was concerned with critical reading skills, which might be called higher order comprehension skills. Specifically, the stated purposes of the research were 1) to determine whether critical reading skills can be taught to elementary school children while normal progression in other basic reading skills is maintained; 2) to determine whether there is a relationship between ability to read critically and other characteristics such as general reading ability, intelligence, and personality factors; 3) to determine what kinds of teacher verbal behaviors elicit critical responses from children; and 4) to obtain the reactions of teachers to the process of teaching reading.

The accomplishment of these goals called for an unusually elaborate set of procedures for a school research project. First, a list of critical reading skills had to be devised, validated through the use of a panel of experts, and checked out in elementary classrooms through a pilot study. The OSU Critical Reading Test was the outcome of this effort. The instrument included items in a category labeled as "logic" that tested children's ability to detect fallacies and propaganda techniques and their ability to evaluate the internal consistency of an argument. Items categorized as "general" evaluated children's ability to identify the author's and publisher's point of view and biases and to judge the author's qualifications and to make comparisons of related content from various sources. Under a category called "literature" were items measuring children's ability to identify literary forms and to analyze and evaluate story structure, character development, story setting, format and theme of the story, and the author's use of literary devices.

Another instrument was developed for use in observing and categorizing teacher verbalizations and pupil responses. Twelve teaching units were developed to use in the experimental group and another set on children's literature for the control group. The population used in the study was 651 Ohio school children in grades one through six, with four classes at each grade level, two assigned to the

experimental group and two assigned to the control group. This device enabled the researchers to treat their results as two separate studies, since they replicated the study by having two experimental and two control classrooms at each level. Teachers who participated in the research project were trained in workshops to use the materials provided as they were designed to be used. Pretesting was done to determine initial ability in both general reading and critical reading. Group tests of intelligence and personality were also administered. Post-testing was done using the critical reading test, which had been developed in alternate forms. Six observations of classroom teaching were made throughout the experiment in each of the 24 classrooms.

The researchers found that the children at each grade level, one to six, who were taught critical reading, had higher total scores than those in the control group. The experimental group did as well as the control on general reading tests, indicating, first of all, that instruction in critical reading does not interfere with growth in general reading. Second, this finding indicates that instruction in critical reading is distinct from general reading ability, since training in critical reading did not improve general reading performance in the experimental group over that measured in the control group. Children of all levels of intelligence were found to benefit from the training although they tended to profit in relation to the level of their IQ. The use of group personality tests to determine the relationship between personality factors and critical reading ability resulted in inconclusive findings. The results of the observational part of the study indicated that some teachers persisted in personal habits of questioning throughout the experiment, regardless of the level taught. The experimental group of teachers did, however, ask more analyzing and evaluating types of questions, while the control group of teachers asked more specific fact, interpreting, and applying types of questions. The observation of pupil responses disclosed that the depth of thinking underlying their responses was influenced by the type of questions that the teachers asked. Generally, the teachers had positive reactions to what their pupils had learned during the project, although many did feel that there had been too many skills to teach in one year and suggested that the instruction in critical read-

ing skills should be started in first grade and the concepts introduced gradually throughout the years of schooling.

This study on critical reading is of particular significance to elementary teachers because the experiment was conducted right in elementary classrooms, teaching was done by elementary teachers, the training was done at all levels, first through sixth, and the results were clear-cut with direct implications. The study by Davis (2) is somewhat more typical of previous research and contrasts with the Wolf, King, and Huck study in several ways. First of all, the Davis study was based on the testing of two different groups of twelfth grade students. There was no experimental treatment of the students but, rather, an extensive analysis of test results for the purpose of establishing the degree to which eight different comprehension skills are unique aspects of reading performance in mature readers.

In his procedure, Davis administered two forms of a reading test—Form A and B, each with 20 items over eight categories of comprehension—to 400 high school seniors. The categories were recalling word meanings; finding answers to questions answered explicitly in the content; weaving together ideas; drawing inferences; recognizing the writer's purpose, attitude, tone, and mood; drawing inferences about word meanings; identifying the writer's techniques; and following the structure of a passage. From the 40 items measuring each skill (20 on each form of the test), 24 were selected which had the best basis for saying they were unique items under their category. A new test in alternate forms, C and D, with 12 items in each of the eight categories was prepared and administered to a different population of 1,100 twelfth graders.

After a thorough analysis of the data obtained from the second testing, the researcher concluded that comprehension among mature readers is not a unitary mental skill or operation. He believes that substantial parts of the mental abilities called into play in responding to the eight categories of items are independent of one another. An implication drawn is that systematic and carefully planned learning exercises, appropriate in difficulty for each pupil, should be provided after the establishment of basic mechanical skills is clear. According to Davis, these exercises, probably in the form of self-teaching workbooks, should 1) make pupils familiar with the mean-

ings of as many words as possible; 2) encourage pupils to draw inferences from what they read and do this accurately; and 3) provide practice in following the structure of passages, finding answers to questions answered explicitly or in paraphrase in context, and recognizing an author's attitude, tone, mood, and purpose.

Of special interest to elementary teachers is Davis' suggestion that a next step in the analysis of comprehension skills ought to be the applying of his research technique to comprehesion in the middle and primary grades. The results of the elementary grade experiment discussed earlier would seem to indicate that, very likely, items could be developed to test validly various facets of comprehension in elementary school children. The value of self-teaching workbooks could, possibly, be as great for younger pupils as for mature readers, in view of Wolf's finding which suggests that training in critical reading can be provided simultaneously and independently of the development of general reading skills.

Weintraub (7) refers to several studies reported in the literature since 1965 (primarily those done by L. T. Frase and by E. Z. Rothkopf), which focused on the placement of questions, on the relationship of the type of question to the retention of content material, and on the frequency with which questions should be asked to achieve the greatest recall. Weintraub cautions that the research findings are limited to a narrowly conceived and specific kind of reading—reading for details. With that warning, he goes on to state the following:

> It appears that detail questions asked before the material is read, result in directing attention to reading for a limited amount of information and for little else. If the teacher wishes to pinpoint details within a selection, such questions preceding the silent reading would be useful. If the teacher is interested in having students practice skimming or scanning skills, factual questions of a limited nature posed prior to reading would again seem to be an extremely useful technique. If, however, the teacher prefers that students read for retention of a greater number of details, a better approach appears to be exhorting pupils to read slowly and carefully.

Even though the studies Weintraub refers to were done using

college students or, in some instances, high school pupils as subjects, the results would undoubtedly be similar in studies using elementary grade children.

Another Approach to the Study of Reading Comprehension

The reason Bormuth's article (*1*) should be called to the attention of elementary teachers is because it may project the future of research on reading comprehension, while the other research described reflects past ways of attempting to study comprehension. Bormuth is harsh in his judgment of past researchers and practitioners alike, including himself. He says:

> Instruction in reading comprehension is poor because there is almost no research of any value in the area. Nearly all this research and virtually all the instruction are based upon a conception of comprehension which is faulty and so subjective and nebulous that it is more misleading than helpful.

Bormuth's contention is that comprehension has been defined in terms of mental processes which are not directly observable. The opinions of panels of judges and the results of analytical studies of test items have provided the basis for saying certain processes are valid subcomponents of reading comprehension. Bormuth insists that the place to begin in researching comprehension is in analysis of *language* and not with the introspective analysis of thought processes. He states:

> . . . the content of comprehension instruction might be said to be the rules describing how the language system works to transmit information; and that the tasks of research in reading comprehension are 1) to enumerate these rules, 2) to develop teaching tasks for children's behaviors in the manners described by these rules, and 3) to organize them into a systematic sequence for instruction by determining their relative complexities.

To illustrate his approach, Bormuth uses a set of sentences somewhat as follows:

The diminutive lad mounted the steed. He fell off the steed. His arm was broken.

Questions of the following type might be generated to check comprehension of the short passage:

1. Who mounted the steed?
2. What did the diminutive lad do?
3. Whose arm was broken?
4. What caused the breaking of the lad's arm?

Note that the answer to Question 1 (the diminutive lad) calls for a knowledge of word relationships within a single sentence. The answers to Question 2 (mounted the steed, fell off the steed, broke his arm) call for a knowledge of word relationships within a sentence as well as how words may be substituted for one another between sentences. The answer to Question 3 (the diminutive lad) also calls for a knowledge of how words may be substituted for one another, while the answer to Question 4 (his falling from the steed caused the broken arm) calls for the derivation of a statement which is not explicitly stated at all.

These language manipulations required to answer such questions can be systematized, according to Bormuth; and, probably, with the right analysis, labeling, and use of models, comprehension can be operationally defined in terms of the mechanics of language.

To read Bormuth's article is difficult for anyone not attuned to the jargon because the author engages in a dissection of the language process that, he admits, draws on transformational-generative grammar, structural linguistics, rhetoric, semantics, and logic. He implies that a rigorous examination and disciplined description of the language factors that contribute to literal comprehension and inference (i.e., such things as semantic meanings of words, the influence of affixes, sentence structure, and identification of antecedents) can bring about a logical and sequential basis for programing experiences for the learner that move him up the ladder in terms of coping with increasingly more complex language patterns. Bormuth optimistically predicts that once the definitions are arrived at, teachers having no more knowledge of linguistics than that acquired in high school can quickly learn to produce questions of the type desired to bring about the sequential growth in comprehension ability desired in the learner.

Bormuth, apparently, expects that teachers will be provided

with model questions to work from that can be imitated in structure. The teacher will be enabled to phrase questions of the type provided by the model while using just about any material with which the pupil is currently working. The teacher simply prepares the questions over the body of reading matter in such a way that the questions themselves lead the learner to engage in progressively higher orders of language utilization, i.e., steps in literal comprehension and, perhaps, inference.

A further promise in Bormuth's speculation is that we, one day, will have tests of reading comprehension that will provide results which direct the teacher's attention to the nature of the language inadequacy causing the learner to break down in "comprehension." Furthermore, relating Davis' suggestion for workbook exercises to Bormuth's strategy, we could reasonably anticipate the appearance of programed exercises which provide sequential and systematic upgrading of the weak comprehension areas and have these keyed to test results. The strategy outlined by Bormuth appears to hold this potentiality for a step-by-step analysis of lower order reading comprehension skills that the older research strategies have not yet provided. Whether the language analysis research envisaged by Bormuth can deliver what is promised is open to question, but it is fairly certain that research on comprehension for the immediate future will increasingly be directed along these lines.

Concluding Statement

It is just a little cavalier to dismiss research on reading comprehension as valueless and devoid of any clear-cut implications, as several writers have done in reviewing the area. This paper was begun by citing several current references which list those implications for teaching that can be drawn from the accumulated research on reading comprehension. For summary purposes, only those general implications that can be drawn from the four references discussed herein will be included. These implications are the following:

1. Reading comprehension skills, including those of a critical, evaluative type, can be taught at all levels of development.
2. Comprehension skills, especially those of higher order, ap-

pear to be acquired independently of other general reading skills.

3. Although the acquisition of higher order comprehension skills is related to intelligence, all levels of intellect can profit from specific instruction in these skills.
4. Classroom teachers should give considerable attention to the nature of the questions they use to direct reading activities of their pupils, since questioning appears to have great impact on the outcomes of reading.
5. Teachers should not allow a current lack of uniformity in the labeling or designating of subskill areas in comprehension to deter them from turning their best efforts to improving the reading comprehension of their students.

The challenge to develop capable readers, confident in their ability to understand and critically evaluate what they read, has never been greater. In the accumulated research on reading comprehension, classroom teachers can find encouragement to sustain them in their efforts to do a better job.

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Review and Application of Recent Research on Reading in the Content Areas

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THE TASK of interpreting and translating any body of research into classroom practice is always a difficult one. However, the problem becomes even more challenging when the topic is one such as the "teaching of reading in content areas." In addition to the familiar problems associated with evaluating the research designs, procedures, and statistical analyses of the studies, the greatest problem facing the reviewer in this case is that there is a paucity of research to interpret.

The present reviewer limited his search to the literature of the past five years. Research bibliographies such as appear in the *Journal of Educational Research* and the *Reading Research Quarterly* were studied as well as those in such sources as *Dissertation Abstracts*. A bibliography of all possible citations was made and then the studies were located in order to determine their suitability.

The studies chosen for discussion in this paper were those that the reviewer found to be experimental in nature and which seemed to meet reasonable standards for such research. A total of eight studies are presented in some detail in the early sections of this paper. In the latter part of the paper, an attempt is made to bring the findings of these separate studies together into a series of conclusions that relate to classroom practice.

Research on Reading and Mathematics

Two of the studies reviewed dealt with the teaching of reading related to the mathematics area. The first of these was conducted by Henney (*8*) and involved 176 fourth grade students. These students were from various socioeconomic levels and had a range of IQ from 75 to 150.

The fourth graders were equally divided into two experimental

groups. One group received, over a nine week period, eighteen special lessons of instruction in reading verbal problems. The second group had, during the same time period, eighteen class periods of supervised study during which students had the opportunity to solve problems by whatever method they wished.

The achievement measure used to compare the groups was a Verbal Problems Test constructed by Henney. Both groups were found to have improved their ability to solve mathematics problems and there were no significant differences between the two experimental treatments. Henney concluded that both approaches could, when used in addition to regular classroom instruction in mathematics and reading, help students in problem solving.

Coulter (5) reported a similar but more extensive study of the effect of special reading instruction on arithmetic achievement. A total of 1,008 children from 39 fourth, fifth, and sixth grade classes received a series of twenty lessons developed as adjuncts to the normal arithmetic program.

These twenty lessons were prepared by Coulter and detailed teacher's guides and student workbooks were made available to the experimental classes. The lessons covered ten different skill areas including vocabulary study and recognizing the literal meanings of verbal problems. Both teacher-directed and student self-study activities were built into the lessons. The lessons did concentrate on reading skills and no particular attempt was made to improve the students' computational skills.

Various achievement measures were administered to the students in the experimental classes as well as the 993 students comprising the control group. Results showed significant differences favoring the experimental group on tests of arithmetic reasoning and arithmetic fundamentals. Although the experimental group was ahead of the control group on a test of reading achievement, the difference was not statistically different.

Research on Reading and Science

Four studies were selected for review which involved the teaching of reading in the science field. The first of these studies, reported

by Bennett and Clodfelter (*3*), was conducted at the second grade level and involved 174 students.

Bennett and Clodfelter developed a new earth science unit, thought to be appropriate for second grade students. In certain classrooms, this unit was taught for six weeks while another equivalent set of students (the control group) used the regular science curriculum and materials.

In addition, a third equivalent group of students in different classrooms were selected in which the new earth science unit was used and was supplemented by special vocabulary instruction. In this third situation, each child was given a basic list of words to be used in the new unit as well as a list of basic affixes and roots with meanings provided. Teachers in these classrooms were directed to introduce the words at the time of or just previous to their students' encounters with them.

The two investigators constructed an achievement test measuring attainment of factual information, concepts, and the vocabulary of earth science. Both experimental groups scored significantly higher on this test than the control group, but the group given special vocabulary help achieved significantly higher scores than did the other experimental group.

The second science related study was conducted by Barrilleaux (*2*) in the State College of Iowa Laboratory School. Matching techniques were used to develop two groups of twenty-one junior high students equal in IQ and preference for science as a subject. The two groups were involved in the study for two years while the students were in the eighth and ninth grades.

The control group was instructed by a basic textbook approach in their science classes. The students in the experimental group were issued no textbooks or study materials but were encouraged to use a variety of references and sources in the school library.

A variety of data were gathered to evaluate the results of this study. Basically, there were no significant differences in science achievement or critical thinking for the two groups. The experimental group did indicate a significantly higher positive attitude toward science and was also found to make much greater use of the library, even for nonscience-related tasks.

The problem of interest to Brown (*4*) was determining to what extent pupil experimentation and reading could affect the learning of the principles of six simple machines. Three classes of fifth grade students, equated on the basis of mental ability, were formed in each of four schools. Each class contained eight high ability, sixteen average ability, and eight low ability students.

One class in each school was given ten lessons on the principles of six simple machines with reading materials provided for the students. In another class in each school, the same ten lessons were given with the reading material being enriched by provisions for pupil participation in experiments illustrating the principles. The third class in each school received no machine instruction and served as a control group.

A forty-eight multiple-choice test was constructed to measure achievement. This test was administered immediately after the completion of the unit and also three months later. The two experimental groups were significantly ahead of the control group on both the immediate and delayed administrations of the achievement test but they did not differ between themselves.

The most extensive of the reading and science studies was conducted by Fryback (*6*) in three school districts in Portland, Oregon. A set of new science materials had been developed which were written at five different reading levels, providing three different levels of sophistication for science experimentation and providing for extensive student discussion. These new materials were the focus of attention in this study.

Twenty-nine fifth grade classes were divided into the following six treatment groups:

1. Students read only the middle level of the five reading levels. The materials were discussed, and experiments at the average level of sophistication were performed by the students.
2. Students read according to their ability, at three levels: lowest, average, and highest. The materials were discussed and experiments provided with the three reading levels were performed by the students.
3. Students read, according to their ability, at all five reading levels. The materials were discussed, and experiments pro-

vided with the five reading levels were performed by the students.

4. Students read, according to their ability, at all five reading levels, performed the experiments, but did not discuss the materials.
5. Students read, according to their ability, at all five reading levels, discussed the material, but did not perform any experiments.
6. Students did not use any of the materials.

Fryback found no significant differences among the first four treatments, but the students in Treatment 5 had significantly lower scores than the students in Treatments 1-4. The researcher thought that these findings demonstrated the importance of science experimentation for students, but he concluded that discussion techniques and multilevel reading materials were not crucial.

Research on Reading and Social Studies

Two studies were found which related the teaching of reading to social studies content. In the first of these, Hasselrils (7) experimented for six weeks with 74 eighth grade students who had average intelligence but were reading below grade level.

All students were instructed with a new set of social studies materials which provided the teachers with lesson plans designed to give students help in vocabulary, developing purposes for reading, and discussion techniques. The new materials also contained reading comprehension exercises but they were not used in the study.

Hasselrils' main concern in the experiment was to vary the way the actual social studies content was presented to the students. One group read the material themselves while a second group listened to tape recorded versions of the material only. A third group listened to the tapes and read the material simultaneously.

Tests provided with the new materials were used as well as standardized achievement tests to measure experimental effects. All three groups were found to have made significant gains in social studies achievement, and all three groups had made gains in vocabulary. Hasselrils surmised that the prereading aid and discussion provided

with the three groups had largely been responsible for the achievement gains and had negated any differential effects of content presentation.

The second social studies study was conducted by Adams (*1*) and focused on what teaching arrangement would result in the greatest gains in reading and social studies. A total of 75 fifth grade students were randomly selected from a public school to participate in the experiment. All 75 students were reading well below grade level and were also poor achievers in social studies.

The 75 students were put into three different classes. With one group, the regular classroom teacher taught both the social studies content and the reading work study skills. With the second group, the regular classroom teacher taught the social studies content and a corrective reading teacher took the group, three times a week, to her room for reading instruction. In the third arrangement, the classroom teacher and the corrective reading teacher worked together in one classroom on both content and reading instruction.

Adams found that all three groups made significant gains in both reading and social studies achievement, but the students in the team-teaching arrangement made significantly greater gains than the other two groups. She interpreted the results to mean that the most effective arrangement for organizing social studies and reading instruction is one in which appropriately trained personnel work together and provide for maximum transfer of the skills.

Discussion of Research Findings

The following discussion reflects the present reviewer's own interpretation of the studies just presented. The implications are not listed in any order of priority but do represent one person's effort to relate a body of research to classroom practice.

1. The studies reviewed seem to present considerable evidence to support the contention that providing reading instruction in specific content fields can result in a number of benefits for students. This was demonstrated at several different grade levels and in three different content areas. It is fully recognized that none of the investigators exhausted all possible opportunities for relating reading

skill development to a content area, but what they did identify and implement, worked.

It should be emphasized that the special reading instruction provided in these studies resulted in significant improvements as indicated by content area achievement tests even though the time taken to teach reading meant that the experimental groups could not cover as much content as the control groups. This should dispel any notion that valuable time is lost when reading instruction is added to the content area teaching periods.

2. The importance of helping students directly with the vocabulary of the different content fields is emphasized in a number of the studies. This particular point has been stressed in methods textbooks for years, and these studies provide empirical support for this recommendation.

More than one of the investigators stressed the desirability of dealing with specific vocabulary items just prior to students' encounters with them. This is contrary to the all too familiar practice of discussing key vocabulary words and their meanings *after* a student has already struggled with them in an assignment.

3. The Hasselrils' study, in particular, lends credence to the often stated recommendation that the directed lesson plan is an appropriate scheme to use in implementing the teaching of reading in the content areas. The three groups in his study would have perhaps made even more impressive gains if the reading comprehension exercises provided in the content materials had been utilized.

What is desperately needed to implement fully the directed lesson scheme is a *series* of studies designed to determine more specifically what the key comprehension and study skills are in the various content fields. The work of Smith (*9*) was a beginning but should not be assumed to be the ultimate.

4. The Adams study points out the need for providing conditions for maximum transfer of the reading skills instruction to a content field. In other words, her study indicates that the best place to teach reading skills related to social studies is in the social studies instructional period. Adams found a team-teaching plan to be the best personnel arrangement but that may have been only because

the regular classroom teachers had not had the necessary training to work effectively with disabled readers.

5. Because of certain conflicting findings in the research reviewed, it appears that there is a great deal of additional study needed regarding certain proposals to overcome students' problems with reading content textbooks. For example, the results of the Fryback study raise doubts about the value of using materials written at various levels in a classroom.

The explanation may be that simply lowering the reading level of a selection through the use of traditional readability formulas does not really change the difficulty of the material much. The heavy concentration of abstract concepts may still be present even if the vocabulary has been simplified and the sentences made shorter.

Two of the studies also presented conflicting data regarding the effect of active student participation in science experiments as a supplement to or as a replacement for reading textbook material. The search should certainly continue for viable alternatives to the traditional one textbook approach in the content fields. Perhaps the day will come when it will no longer be so necessary to stress the importance of developing reading skills in the content areas. Subject matter specialists may find that using a textbook as the main vehicle of instruction is not the most effective way to reach their objectives. When that day comes, interested reading specialists can then "close their books" on this topic and can join their colleagues in the never-ending search for the best way to teach consonant and vowel sounds!

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Listening Skills and Experiences Related to Reading

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DURING the past several years at reading conferences and in the reading literature, frequent mention has been made of the importance of listening skills. The high percentage of time adults spend in listening has been compared to time spent in reading. Forty years ago, in fact, it was estimated by Rankin (*15*) that adults spend approximately three times as much time in listening as in reading—and that estimate was made in the beginning days of radio and before TV! What would a similar estimate be today? One would assume that the percentage of time spent in the two activities would be much higher, and would also vary from one individual to another, for as we all know, some adults spend very little time reading (some none at all). In the sound-oriented society in which we live today, however, all are forced to listen often during the course of each day.

Mentioned frequently, also, is the neglect of planning for specific instruction to improve listening. Comparisons have been made of the time spent in instruction in reading, writing, and speaking and the time spent in instruction in listening. As a result, listening has been called the "neglected" language art. If a classroom teacher recalls the total amount of time he used within a given week to improve reading skills and compares that time with the total number of minutes he used to improve specific listening skills, he usually would be the first to agree that he had neglected the teaching of listening skills. Continuously, estimates are being made that the elementary school pupil spends from one-half to two-thirds of his school day listening (*9*).

Research in Listening

Although listening may have been neglected in the past, in actual classroom practice there has been no neglect upon the part of

researchers and writers. In fact, educators have turned their attention to the various facets of listening. During the 1940s many experts wrote on the subject of the interrelationship of the language arts including listening. In the following decade, tests of listening ability were devised, notably the Listening Comprehension Test (*3*) for high school students and the Reading Capacity Test (*4*)—a test based on listening—for elementary school children. Donald Durrell has revised the latter into the Listening-Reading Tests, 1969. Also, during the 1950s, Nichols and Stevens wrote one of the first books devoted exclusively to this skill. In the introduction to that volume, the authors (*14*) stated, "Incredible as it may seem when we think about it, this book, to our knowledge, is the first close analysis ever made of the oldest, the most used, and the most important element of interpersonal communication—listening." During this decade, too, David Russell wrote *Listening Aids Through the Grades, One Hundred Ninety Listening Activities.*

Likewise in the 1950s and early 1960s many articles on listening were published in professional journals; for example, Furness' "Improving Reading Through Listening" (*6*). During this period, also, a notable increase in the number of details on how to encourage better listening began to appear in school curriculum guides. And most reading conferences, which offered comprehensive programs for their participants, began devoting a section or two to consideration of ways to improve listening skills.

Important as all these activities were, perhaps the major contributions during the 1950s and the 1960s were research projects and doctoral dissertations. Graduate students investigated various topics having to do with listening: Brown investigated "Auding as the Primary Language Ability"; Mardsen chose "A Study for the Value of Training in Listening Achievement in Reading"; Stomer reported "An Investigation into Some of the Relations Between Reading, Listening, and Intelligence"; and Pratt wrote on "The Experimental Evaluation of a Program for the Improvement of Listening."

Appearing in the Winter 1970 issue of the *Reading Research Quarterly* is an item by Duker, "Listening Bibliography," containing the following annotation: "Gives brief annotations of 1,332 refer-

ences concerning listening." Thus it is readily seen that there is no lack of interest in improving listening skills or carrying on research related to listening and all of its complex facets.

One of the most significant ideas emerging from research carried on by Kelty (*10*), Lewis (*11*), Lubershane (*12*), and Hollingsworth (*8*), is that when we improve certain skills in listening these same skills improve in reading.

Kelty determined the effect that training in listening for certain purposes had upon the ability of 188 fourth grade pupils to read for those same purposes. The purposes referred to were 1) deciding upon the main idea of a selection, 2) deciding upon the supporting details given in a selection, and 3) drawing a conclusion. The experimental group of ninety-four pupils was given thirty fifteen-minute lessons over a period of thirty days in listening. The control group received no instruction in listening. Kelty concluded that practice in listening for certain purposes favorably affects the ability of fourth grade pupils to read for those same purposes.

Lewis conducted a study with intermediate grade pupils to determine the effect of training in listening 1) to get the general significance of a passage, 2) to note details presented on a topic by a passage, and 3) to predict the outcomes from a passage. Three hundred fifty-seven intermediate pupils in twelve classrooms were used in a program of training in listening, consisting of thirty lessons of approximately fifteen minutes each. One lesson was given each day for six weeks. The teachers read the selections to the pupils. Each lesson included a listening exercise for each of the three purposes stated above. Lewis concluded that training in listening for the three purposes seemed to have a significant effect upon the ability of intermediate grade pupils to read for those same purposes.

Lubershane conducted a study to determine if training in listening can improve reading ability. His study included thirty-five pupils in the experimental group and thirty-seven in the control group, both groups from the fifth grade. The control group was given no listening exercises. The Metropolitan Reading Test for reading achievement was given before and after training. The experimental group was given auditory training exercises designed to improve written responses to oral commands. He concluded with a

statement that auditory training may prove of value in reading programs, although no definite statistical proof of the value of these exercises in improving reading ability was found. The generally greater growth in reading ability in the experimental group suggested strongly that the auditory exercises had a positive effect on reading growth.

Hollingsworth reported other research studies in which the effects of listening had a direct relation to progress in reading, and concluded, "Many of these research reports show that through improvement of listening abilities reading can be improved. Listening does have a positive effect on reading achievement."

It behooves us, therefore, to give consideration to the importance of teaching skills relatedly through listening and reading. Perhaps in the past we have been remiss in not using a listening-reading method in the improvement of reading instruction. Certainly we need every approach which research and knowledgeable, practical, experience can give us in order to help boys and girls with the complex job of learning to read.

The Listening Skills

The research reports referred to, mention the improvement of certain listening skills. Educators (*2*) consider the following specific listening skills important: following directions, following story sequence, identifying main idea and details, summarizing, noting cause and effect, sensing inferences, listening critically, and listening creatively.

There are, however, other facets of listening that need to be understood. In general, the list of skills just named assumes two things: 1) that the listener has no auditory defect—that is, the listener's hearing acuity is accurate to the extent that he receives the sensation of sound without distortion; and 2) that the listener is proficient in the basic skills of learning.

For discussion purposes, oral input may be classified as one of two types: basic listening or cognitive listening. The basic, or primary, requirements of auditory perception are: discriminating, focusing (or attending), tracking, remembering, sequencing. These skills

of auditory perception are basic to the operation of the higher processes of cognitive listening skills.

First of all, then, basic listening: discriminating. Of all the basic listening skills, discrimination—or the lack of it—is probably the most familiar to teachers. Often teachers give practice in auditory discrimination in relation to the teaching of reading and good classroom procedure suggests that every teacher screen each individual in his class for auditory discrimination skills at the beginning of the school year. Otherwise, how will he know who can profit most from help in phonetic analysis as a word attack skill? Appropriate for the elementary level is an auditory discrimination test, such as the one included in the Gates-McKillop Diagnostic Reading Test (*7*) or a longer one, the Wepman Auditory Discrimination Test (*17*). At the secondary level, material which the teacher can use to identify those students having trouble with auditory discrimination can be found in one of the new listening skills programs, The Listening Progress Laboratory (*1*). These auditory discrimination tests, plus the tests in the Listening Skills Program (*2*), will help the teacher to identify those pupils who need practice in this basic skill.

A second basic listening skill is focusing or attending. In order to listen efficiently and effectively, the listener must not only have auditory acuity and be able to discriminate between sounds, but he must also be proficient in focusing or attending. The listener focuses —zeroes in on the speaker's ideas—attends only to the speaker. In other words, he must be skillful in "tuning in" the spoken word and "tuning out" extraneous sounds, noises, or voices. From your own experience in dealing with pupils, you know that some pupils are expert in "tuning in" and "tuning out." By the same token, you know how ineffective some are in "tuning in," or focusing or attending, and how nearly impossible it seems for some to "tune out" distracting noises. Both of these types of learners need practice in order to develop this listening skill.

A third basic listening skill is tracking. How effective are your pupils in receiving a message when there are competing messages? While some may be able to discriminate and "tune out" environmental noises, they may not be able to hear two voiced messages and successfully track or follow one of them. In a practical example, how

skillful is the pupil in listening on the telephone to the voice at the other end of the line when someone is speaking beside him? Tracking, used in this sense, is a difficult basic skill.

A fourth basic listening skill is remembering. Many educators consider listening the most difficult of all the language arts. The reason for this lies in another dimension of listening, that of temporal order. Output by a speaker and the resultant input by the listener is time-oriented, the success of the listener depending not only on discriminating, focusing, and tracking, but also on auditory memory, and sequencing. Remembering and sequencing are more difficult in listening than in reading. There are no visual props, no replay, no rereading, no comparisons. In reporting on the results of the PACE Project in Alameda County, Wilkin (*18*) writes: Words and sentences are made up of a series of sounds presented in a temporal order, and this order is a major dimension of language." Sterritt, Martin, and Rudnick (*16*) expand upon this idea: "Vision and hearing differ from each other in a number of ways, one of which is that vision gives us a great deal of information about precisely how things are laid out from left to right, up and down, etc.—how things are arranged in *space*. Hearing, on the other hand, gives us only a crude picture of spatial arrangements, but is organized instead as a sequence of events strung out in *time*. Therefore, when we talk about auditory-visual integration, we are usually also referring to *temporal-spatial* integration—the ability to integrate information that is arranged as a string of events in *time* with information given as an arrangement in *space*."

Lundsteen (*13*) says "When the mode of reception of the verbal data with which to think critically is purely auditory, there are more difficulties than when reception is by reading. Reading imposes a helpful constraint of a relatively permanent medium."

In contrast to the basic skills of listening, there are the cognitive skills. Most classroom teachers give students help in the cognitive listening skills by structuring in one way or another many of the normal classroom listening situations. One opportunity for such an activity might be one in which the teacher reads stories and poems to the class. By setting a purpose for the pupils, she could help them improve their listening for the main idea, or for cause

and effect, or for any of the enjoyable purposes of creative listening or reading. Of course, one of the most important of all listening skills is that of critical listening. In a recent issue of the *New England Reading Association Journal*, Devine (*4*) summarized the results of several studies in critical listening in his concluding remarks. "Certain implications may be drawn from the studies described here. First, it seems clear that critical listening can be taught to pupils in grades five through nine. Huck and others have proven that critical thinking can be taught at all levels, including primary. Second, the data indicates that it can be taught with equal effectiveness to pupils who score low on standardized intelligence tests and to those who score high. Finally, teachers working with the materials note that many of the skills in critical listening are so closely related to skills in critical reading, that they can be taught together, thus effecting some economy in teaching time and effort."

Formal practice exercises, made either by the teacher or commercially procured, can also be used to increase proficiency in the various basic and cognitive listening skills. If recordings for practice are purchased, the suggestions in the accompanying teachers' guide usually furnish many additional ideas for extended activities in listening throughout the day. Likewise, language texts and curriculum guides offer invaluable suggestions to the teacher.

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PART TWO. PROCEDURES AND APPROACHES

Relevancy in the Classroom Teaching of Reading

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THE PURPOSE OF THIS ARTICLE is to suggest some appropriate ways in which teachers and pupils may create an environment that encourages each pupil to develop to his fullest potential within a framework that is relevant and meaningful to him.

The Classroom as a Community of Cooperative Learning

We live in a day when the word "relevancy" has a great deal of appeal. Students are not interested in the dictums and rules that make up the world of our generation; learning must have "relevancy" to a whole new set of ideas and ideals. Our purpose in individualizing instruction is to match as best we can the skills, interests, attitudes, and aptitudes that a student brings to a pattern of instruction that hopefully he will see as relevant and that will bring about behavior change in terms of desirable objectives. To aid us in this matching and individualizing process is a great range of new and exciting materials, including working models for experiments, sound recordings, films, teaching machines, programed materials, and all the rest that should make almost any lesson burst into meaning and life. The technology and research that have produced the reading devices and prepackaged education have opened up avenues for reaching even the most reluctant of students. Certainly it would seem reasonable to assume that these modern miracles of our technological achievement would emancipate the teacher from decision making relative to the broad spectrum of individual differences within the classroom. But unfortunately, automated classrooms make the application of what we know about readiness and individual differences a doubly difficult problem, rather than easing its com-

plexities. What about preparation for an ETV lesson, for example, or any other group media? Are some students surfeited with a repetition of ideas they already know because they're a part of a package deal? Are other students left with too little practice material because it does not appear in Box x? These decisions cannot be automated; they require an expert's knowledge of testing and continuous evaluation (*1*). Because we do on occasion forget to carefully match these automated, programed types of materials to the individual through observation and continuous evaluation, we do not always make the processes of learning relevant. With a tendency to believe that these materials are ends in themselves, we too often make what was meant to be supplementary to a pupil's program the major part of his program, and in so doing we separate the pupil from his group and from the community processes of the classroom. Not only do we separate the pupil psychologically and sometimes physically but we separate him in terms of what he should learn, not so much in terms of skills, but in terms of becoming a cooperating human being. The disabled student in particular is too often separated and straightjacketed in the name of individualizing the program, and like the proverbial little match girl, he only gets to peer in through the window toward the brighter lights, and the educational table more richly set than the pickings from his own mismatched fare. He becomes an isolate within his class, consigned to his cubicle, doing his own lonely thing. Yet the omnipresent prepackaged material with its built-in directions seems like the final answer to the overworked teacher's prayer, and we somehow believe that its magic will work where we have failed. So Johnnie is assigned to a kit and Mary to a gadget and Henry and Sam and Sue read the next episode in the basal reader. Everyone is individualized and the only thin line that holds them all together as a community of learners is the four walls and a teacher. In a classroom that has learned to be a community of cooperating learners, such a series of assignments has relevance, and learning takes place. When they are assigned as the last resort without context or reason or on a materials-centered rather than a student-centered point of view, then nothing that is done will in fact have real relevance.

In his latest book, *Two Worlds of Childhood*, Bronfenbrenner

(*3*) decries patterns of individualizing that separate and alienate children from adults and even children from children. Rather, he states that classrooms should generate healthy "group competition and organized patterns of mutual help." Without radical innovation, he concludes, "It will be *all* children who are culturally deprived, not of cognitive stimulation, but of their humanity."

Some years ago I had the opportunity to visit and observe a very large teacher-training practicum at the University of Virginia during the time that the clinic was directed by Emery P. Bliesmer. The classroom organization had created an unusual community spirit and esprit de corps. There were thirty teachers and thirty students working together in a room probably no larger than one-and-a-half times the size of an ordinary classroom. While the noise level was high, so also was the enthusiasm among the small groups as they worked together, exchanged ideas, and cooperated in a multiplicity of ways toward the common goal of learning. While each worked toward the solution of his own goals in a variety of ways, there was an overriding community interest and spirit that held the group together as a group, not as single individuals lonely in the crowd.

For those who live in the East, I recommend visiting the Model Developmental Reading School in Greensboro, North Carolina. A year ago I observed this program in operation also. In this model school situation there was one teacher and teacher's aide per classroom, the effective use of a wide variety of carefully selected materials was obvious, as well as was the individualized approach with many students doing many things at once. There was no lack of control, which could be considered to be negative to the learning taking place, but rather the enthusiasm of the teachers was reflected in the students.

From such observations and experiences, I am convinced that the dialogue of reading is a social process, developed through social context. Reading finds its motivation in language and the environment. While on one hand reading can be defined as relating sounds of speech to a written code, this simplistic definition does not explain why one wants to learn this complex relationship in the first place. Therefore, when we talk about individualizing instruction, we can-

not mean removing the learner from the mainstream of his social world.

Utilizing the Dynamics of the Community

Thus far we have discussed the need for both teaching to read and learning to read to include the cohesive activities of one's own classroom. But more than the daily events of the classroom must be a part of the learning activities available to the student. Day to day activities must include some of the dynamics of our community and town and city and part of our national anxiety. Not only are the artifacts brought in, but students are making the streets and the alleyways a part of the classroom experience. From these experiences reading finds a natural setting, and books and magazines and local newspapers and advertisements and street signs help to give direction and meaning to the students' explorations.

The April 1970 issue of *Think* magazine contains an exciting article on one of the most provocative innovations to date—bringing experiences into the classroom through the medium of student-made movies. These movies are being made by school dropouts or problem students. Their teachers are finding that a roll of film, a camera, and the freedom to depict their environment as they see it "turn on" these youngsters whom they have been unable to reach through regular classroom experiences. Moviemaking is decidedly "in" among senior high, junior high, and even elementary school students. In the Boston area alone, for example, more than 200 secondary schools offer some kind of film making program.

One of the youngest and most active of the film making groups is the P.S. 85 Film Club in the Bronx, New York. Every afternoon, weather permitting, its 20 members shoot location scenes. If it's a spy thriller they're filming, the backyards on Marion Avenue offer a good place for a lively chase sequence. If it's a documentary, then the junk filled lot on East 184th Street is a favorite spot (*4*).

For many of these students, this chance to deal immediately and directly with "where it's at" has opened up a whole new world for learning. These films have been sold and rented commercially and have in several instances been exhibited at film festivals and film

makers seminars. The kids who make them are being kept in school and are learning many things including how to read, for this is a necessary tool in the production of a film sequence.

A similar project was reported by the Associated Press of Newark, California. Here, a 13-year-old eighth grader at MacGregor Junior High School was almost entirely responsible for arranging a week of drug abuse education that taught 640 teenagers what the drug scene is all about. She sent for some literature and learned that speakers, exhibits, and movies were available. Her teachers responded enthusiastically to her plans. She contacted the State Narcotics Bureau in San Francisco, Alameda County Authorities, and several private groups interested in the drug problem. All this grew out of a special report for her history class. It came about because a teacher and an administration were apparently not afraid to stimulate new possibilities for learning from any situation.

Compare this preceding illustration with an experience some time ago when I visited a self-contained high school classroom made up of young men and women who were assumed to be terminal students. They came from culturally different backgrounds and had tested poorly on standardized tests of ability and achievement. I had been invited to observe because the teacher believed that she offered a program especially tailored to meet individual differences. In fact, the kind of materials being used were those common to any narrowly prescribed basal-oriented class. The only thing which was in any way different was that the teacher lectured from a mimeographed sheet while the students followed along with their copy. The subject of the sheet was far removed from any possible involvement that any of the students might have had. At the conclusion of the lecture, I asked the teacher if she used any kind of community information or resource for her reading and study activities, and I mentioned a present community crisis as a case in point. "No," the teacher answered, "Another teacher up the hall gets to use all the newspapers." The community crisis that I mentioned referred to the fact that the community was at this time totally involved in a very serious conservation problem, one that for weeks had found space in the national news services. All the local newspapers and other local news media daily gave major space to this situation that in one way or

another threatened the livelihood of the community. The problem was one of industrial wastes polluting another part of the economy of the community. Think of all the exciting opportunities that this teacher had to engage her students with truly meaningful and relevant experiences for learning! The amount of independent research, the kinds of available materials directly related to the problem, and the student productions that could be the outcome of these experiences were legion. Consider independent research. The teacher might have scheduled speakers from the industry, interviews could have been set up for students, and field trips could have been scheduled to observe the situation first hand. The science students could have made maps of the prevailing winds and water currents which were involved, or taken samples of both air and water for analysis. In terms of critical evaluation, studies could have been made between the reports of the industry concerning its pollution level and the reports of the federal monitoring systems that are in operation at this location. In terms of available reading material, I have already commented on the local and state coverage of the situation. Further, government bulletins are available, at least touching upon parallel situations, industrial brochures are available for the asking, newspaper and TV script could be obtained and ad infinitum. And think of the fun of producing relevant materials as a result of this study and reading. News reports might be written, TV plays and scripts could be developed, and letters to local and state representatives could be written and sent. Yet all the while these kids sat in a classroom devoid of any interest except a teacher reading and lecturing from a mimeographed sheet about how the federal government is organized; and this to low capacity, terminal, high school students! If the teacher, referred to above, had a special compulsion to teach about the function of the federal government, the March 16 issue of *Scholastic Teacher* outlined in detail a plan that would have been ideal for her purposes. The article I refer to, titled "A Unique Chance to Involve Your Students in the Workings of Government," gave a number of suggestions for involving students in the national census. Special programs for the student council were described, role playing activities for typical situations that might occur during the home visitation were suggested, and a series of questions were in-

cluded to help spark class discussion. Readings about the census were carried by Scholastic's *Scope*, and follow-up activities were also given.

Of course the point might be raised, and correctly so, that literally millions of children have learned to read by highly prestructured basal reading programs like Dick and Jane and that millions more are likely to do so. It might also be argued that if the basal reader approach can do the job, why become involved in a language experience approach that is time consuming and expensive in both time and money? The point is, during the heyday of the basal reader, the entire population of many schools consisted of children whose education was deemed important and carefully fostered, and who lived in a world like Dick and Jane and for these children the basal approach was in effect, a language experience approach. The language of the office worker father, the middle-class home, and the activities of the white collar community are neatly portrayed and communicated from the basal reader to the child who was born and raised in such an environment. But the solidarity of social class and homogenous language groupings have broken down in our schools, and with this transition Dick and Jane will for many have to be recreated in another image. I am not advocating the demise of the basal reader. That is the wonderful part about individualizing. For some, Dick and Jane and all the other characters that have figured so importantly in the educational melieu of our youth still find their counterparts in the children of hundreds of communities.

But for many children, such as the ones I described in the terminal classroom situation, new models and new situations must be created out of the stuff that make up their patterns of daily living. Children whose reading skills are being developed by use of language patterns and situations drawn from life on the other side of town can still join with their entire class in common activities that draw from problems relevant to all social classes and language patterns. For example, the ecological problem engulfing a whole town is certainly large enough to interest all students, whatever their level of attainment or ability. If a boy's dad is a fisherman, he doesn't have to have a great deal of ability to realize that the pollutants from a factory may destroy his father's livelihood. He can at least be given the job of sitting along the river for ten minutes each day to count

the dead fish that float by in that length of time. I'm not being facetious—such a count would be a part of an ecological study of pollution damage. Surely, then, if your classroom is engaged in relevant projects, there is something that each can do that demands his skills, his interests, and his energy.

While the characters within the basal reader still find their counterparts in millions of children across the country, for many students these materials are not relevant. George Spache has aided in extending the relevancy and application of some sixteen basal readers through a series of publications by Follett Library Book Company. These new publications are lists of supplementary books, graded to relatively exact reading levels, that are correlated to the contents of the basal reading series, page by page. Approximately 40 different publishers' materials are graded and listed, accounting for over 6000 titles, and correlated to the basal readers relative to subject and interest levels. For example, if you are using *American Adventures, 4th Reader*, nearly 250 reference titles are listed under over 40 topic headings. These are compared page by page with the stories in *American Adventures*. With this reference aid, and a reasonably large holding of these selected supplementary materials, surely a Dick or Jane can be found to fit any condition or circumstance.

There are at least three basic concepts that I hold about how reading develops that have been inherent in the preceding discussion and illustrations. They are: first, that the ability to read must be based on language already in the possession of the reader; second, the more immediately related this language is to the student's basic needs, direct activities, and interests, the more energy he has to generate in recognizing symbols that stand for language; third, however limited a child's language may be to begin with, it is enough to use in starting the long spiral up to literacy.

Learning in a Student Centered Structure

The work of Sylvia Ashton-Warner as related in her book, *Teacher*, illustrates the strength of organic language for investing itself with the coded representations of writing. These points can

best be summed up by stating that learning to read, beginning with word meaning and recognition through comprehension to critical analysis, can be accomplished through materials that have primary, immediate value to the student. Let's consider word meaning. The lists of words (seemingly derived from nowhere in particular) that are given to students to learn are appalling. A language basis for learning (to read, or learning anything else) is not built by sending home long vocabulary lists to be memorized. Webster's Collegiate Dictionary defines vocabulary as "a list or collection of words or of words and phrases, usually alphabetically arranged and explained or defined." This definition of vocabulary leads me further to believe that one does not learn vocabulary as such, but vocabulary is simply the name by which we order or tally the working parts of our language. Language, according to Webster, is "the faculty of verbal expressions and use of words in human intercourse; the words themselves in their grammatical relationships." Language, then, is what we learn, and we learn it, not passively by rote and list, but by an active engagement with it.

Another factor in reading is comprehension. I again consulted Webster. This word means "to embody, or involve oneself with." Again, note the feeling of direct confrontation, of contact beyond the superficial. Looking at the typical exercises that purport to teach comprehension skills, I am prone to believe that most of them do not involve the student in other but a cursory fashion, not at an organic level described by Ashton-Warner, and surely not to the point of genuine relevancy. While a sampling of workbook exercises may give direction to *how* comprehension takes place, to literally "comprehend" in any true sense one must be involved with a context that contains more than the syntactical sum of its parts—it must be a context that engages one's interests and emotions when one sets out to comprehend it.

Of course the art of critical analysis bases itself on having a point of reference about what one reads. I can't critically analyze a text if I do not have an opinion or personal standard from which to judge. Again, the typical materials developed for teaching critical reading skills may show *how* it is done but cannot in any real spirit

of the activity create enough substantive text and context to engage the reader directly in a structure of relevancy necessary for this subjective, objective, and analytical task.

My preceding remarks and illustrations have indicated that learning takes place in an organized and structured environment, but that this structure and organization develops within the atmosphere of a teacher-student dialogue, not superimposed from above. Piaget has said that "teaching means creating situations where structures can be discovered; it does not mean transmitting structures which may be assimilated at nothing other than a verbal level." Too often, we transmit the structure rather than create possibilities for the child to invent and discover. In 1966, the Association for Supervision and Curriculum Development of the NEA produced the publication, *Learning and Mental Health in School.* In it the authors discussed implications of a cognitive field theory that underscore the concept of Piaget. To quote them, "the primary function of the teacher is to help the students to discover problems that demand their personal attention. Giving students answers to problems they do not have short-circuits the whole process of learning by making exploration and reality testing by the students unnecessary and the problem unimportant."

What criteria should be considered in encouraging the selection of a structure for learning? First of all, as we have suggested, it should be student centered. Also, a project or structure that becomes a vehicle for learning should be capable of engendering opportunity to practice in a meaningful setting all the subskills that are required for completion of the project or problem. The learning processes should be self-regenerating by the nature of the learning activities. This self-actuating process should be in the model of a spiral. That is, growth in the language stemming from the project produces a larger stock of words recognized in writing which produces greater comprehension ability which creates a greater background for critical evaluation. But this spiral of learning is not a thin line; it accumulates breadth and depth, with each of the skills interacting with the others, giving words, comprehension, and critical evaluation the context of language in use, rather than the barren context of a few miscellaneous words strung together.

What are the characteristics of the teacher who makes all this possible? I will mention two: the ability to be creative and the ability to foster, by the use of questions, a questioning attitude on the part of students. In a way, creative behavior is what has been described in the preceding illustrations taken from school situations. Quoting from a paper (*2*) written earlier on the art of teaching and the creative teacher, the "creative teacher's thinking is sensitive to problems, fluent, flexible and adaptive, spontaneous and original. It is integrative and nonrigid. It utilizes critical analysis, but goes beyond it, producing new ideas rather than concerning itself with preestablished conditions and ground rules."

The most effective way to bring about behavioral change is through the student's own decisions and choices. A major problem, of course, is that many students do not have the experience to know what structures to use as a vehicle for learning. The ability of the teacher to offer guidance in these daily decisions through skillful questioning will have a direct effect on the ability of the student to develop the art of being curious—to question, and to build learning structures from the stimulation of a questioning attitude. Studies in psychology have indicated clearly that students' learning behavior is directed more by questions than any type of lecture.

In October of 1968 the *Instructor* carried a study by William Floyd (*5*). Floyd selected from administrative ratings the 40 best teachers in a city school system. He recorded a significant amount of verbal activity in these teacher's classes and separated out for study the verbal activity that dealt with teacher-student questions. Of all questions asked, 96 percent were asked by the teachers, only 4 percent by students. This 4 percent was divided between 802 students. One teacher got so carried away by her own voice that she fired off 198 questions without the students having an opportunity to answer back. Only 5 percent of the teacher's questions demanded a thought answer, or seemed capable of demanding any stimulating reflection on the part of students. Eighty-five percent of these questions fell into two categories—memory for facts, and information. Questions almost never used were those dealing with problem solving, the students' interests, or for helping to locate students' problem areas in learning. In another study (*6*), only 10 percent of 190 teachers even be-

lieved that teacher questions should deal with generalizations and inferences.

Do you use an effective questioning technique in order to help students find their best structures for learning? While many do's and don'ts might be listed as questioning technique, perhaps the best one is "Do your questions, and the kinds of questions your students ask zero in, finally, on the kind of question every student asks, if only silently, '*How is what we are doing and you are talking about related to me as a person?*' "

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Effects of Questioning on the Learning of Written Instructional Materials

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MUCH OF READING RESEARCH has been devoted to the development and evaluation of methods of teaching reading. An equally important issue concerns how to optimize learning outcomes from exposure to written prose once basic reading skills have been mastered. This issue takes on added significance since a considerable part of school learning occurs through the medium of written instructional materials.

In this paper two conceptual models will be described which examine the role of text related questions in facilitating learning from written materials. One major feature of these models involves the distinction between nominal versus effective stimulus properties of an instructional document. A nominal stimulus refers to physical properties as for example the particular configuration of letters and words, the illustrations and charts, and content organization of a document. The effective stimulus refers to the psychological reactions produced by reading the material. Unlike nominal properties, the effective stimuli of a document cannot be directly observed. This distinction between nominal and effective stimuli is often made in psychophysical research as in the relation between the frequency of a sound (an objective characteristic) and pitch (the sound perceived by the listener). Because nominal and effective stimuli are never perfectly correlated, psychological reactions cannot be perfectly predicted from the nominal input provided the individual.

It is assumed that the effective stimuli of a written lesson may exercise a considerable impact on what is learned and retained by the reader. It is further assumed that the kinds of studying behaviors which a reader engages in will determine the effective stimulus value of a document and accordingly what is learned from the material.

Consider for example the learning outcomes of a person who merely skims a passage versus one who carefully reads it.

Instructional Processes of Cybernetic and Mathemagenic Models

In discussing the function of instructional questions Anderson (*1*) emphasizes that ". . . the most compelling stimulus in a program frame is the question which must be answered or the blank which must be completed." Instructional questions might thus exercise an important function in influencing the effective stimulus properties of a document.

To more explicitly account for the possible instructional effects which questions may exert during reading, attention might first be directed to a cybernetic interpretation (*13*, *14*). From this viewpoint, the reader is treated as a guidance system in which behavior is adjusted and matched in relation to feedback provided by environmental events. For example, upon being presented with a question, "Who is the President of the United States?" a student searches a reading passage until he can answer it. If he is unable to answer after reading the passage, an internal signal is generated which provides guidance to further studying until the question can be answered.

Based on the operant model of program instruction, it might be anticipated that providing immediate knowledge of results regarding the accuracy of a response would facilitate learning. However, Hershberger and Terry (*5*) and Krumboltz and Weisman (*7*) found that delaying or omitting confirmation on program frames did not have any appreciable influence on the content mastery of a program.

In interpreting these findings, the cybernetic model emphasizes that learning does not occur through the strengthening of a response by confirmation as a form of reinforcement. Rather stress is placed on what a student does while reading, particularly the studying adjustments to environmental feedback, which determines learning outcomes. It is this closed loop approach to human behavior which represents a distinct feature of a cybernetic model of instruction. Accordingly, the absence of any instructional effect associated with

the confirmation of a response is not surprising from a cybernetic analysis.

The mathemagenic model proposed by Rothkopf (*8*) provides a more explicit analysis of the role which questions have in the instructional process. The term mathemagenic refers to those behaviors associated with reading and studying which produce learning. Since mathemagenic behaviors are hypothesized for the most part to be unobservable, it is only possible to speculate about their characteristics. Mathemagenic behaviors probably include gross postural adjustments toward the printed page as well as eye movements over the printed matter. Of more interest are behaviors which are typically classified as higher order processes. These include 1) the translation of printed words into inner speech; 2) the structuring of inner speech into phrases, sentences, and other syntactical units; 3) the attribution of meanings to internalized speech; and 4) content processing including rehearsing, reviewing, the use of mnemonic devices, and mediational or thinking activities. The list does not exhaust all possible mathemagenic activities; rather it attempts to indicate the complexity and range of behaviors subsequent to the perceptual scanning of printed words.

An important assumption is that mathemagenic behavior may be modified through the intervention of appropriate environmental events. Through such intervention it may be possible to influence what content the learner responds to, and ultimately what is acquired. Instructional control thus involves shaping stimulus selectivity and other mathemagenic behaviors to achieve some study objectives.

The Influence of Questioning on Instructional Behaviors

One possible way by which mathemagenic behaviors may be influenced is through questions or other test-like events. Thus, Carmichael and Dearborn (*2*) found that by interposing short quizzes throughout the experimental period it was possible to maintain relatively efficient eye movement behavior during six hours of reading. In contrast, Hoffman (*6*) noted a decrement in eye movements

after just 30 minutes when subjects were required to read materials for four hours but with no periodic quizzes.

More recently Hershberger (*4*) and Hershberger and Terry (*5*), using more school relevant materials, showed that subjects learn more from written prose if they are periodically questioned. Unfortunately these data are equivocal since the material upon which subjects were tested while reading was very similar to the material upon which the criterion test was constructed. It could well be that the facilitative effect found on the criterion test was due to the specific practice effects associated with responding to test items during reading. Thus, these data do not differentiate between two alternative possibilities: that questions exert specific instructional effects; or that they strengthen mathemagenic behaviors which in turn may exercise generalized effects on the learning of written materials.

Several studies utilizing the mathemagenic model (*3*, *9*, *10*) have clarified the role which questions have on the learning of written prose. Typically these studies require the subject to read a relatively long passage of from 3,000-5,000 words. The test material is divided into several sections, with at least one factual type question, (to be referred to as TQs—text questions) constructed from the content of each section. In addition, a criterion test designed to assess mastery of the text material is administered after the subject completes reading the document. An important methodological feature of this research is that the TQs are so selected to minimize transfer of training from the content associated with these questions to the material underlying the criterion test. The results of these investigations indicate that questioning not only has a facilitating effect upon the retention of information specifically relevant to the TQs but more importantly, to material which is incidental or unrelated to these questions. Findings further indicate that 1) the incidental facilitation of prose materials is highest when the TQs occur after rather than before the text passage to which they belong; and 2) the absence of any formal feedback or response confirmation does not reduce the instructionally facilitating effect of questions.

The finding that the effects of TQs are dependent on their position within the text material is consistent with the emphasis of both the cybernetic and mathemagenic models that studying activities rep-

resent adaptive processes. Specifically, when a question occurs after a passage, a student uses a TQ as a criterion against which he may match and compare his studying behavior. If his response does not satisfy the requirements of a TQ, the student continues his searching until the criterion is satisfied. On the other hand, a question preceding a text section may fixate studying behavior in relation to only a narrow test segment, thereby minimizing adaptive searching and ultimately depressing the incidental learning of material nonspecific to a question.

The utilization of questions to facilitate school learning may be extended into more elaborate instructional situations. Consider for example, the model of a self-instructional library proposed by Rothkopf and Bloom (*11*). Self-instructional libraries are conceptualized as learning environments so constituted as to assume responsibility not only for the accuracy, completeness, and accessability of their collection of instructional material, but also for the effective use of these materials by students. Such self-instructional libraries are realistic instructional means and could represent an important feature of schools of the future.

An important practical problem for self-instructional libraries is how to shape and sustain effective study or mathemagenic activities. This issue takes on added significance when one considers the frequency with which many students often show inattentiveness and listlessness within the instructional milieu of a library.

In the study by Rothkopf and Bloom the use of direct social contacts was explored as a means of controlling studying in a self-instructional situation. More particularly, does the delivery of text related questions by a teacher promote more effective studying of instructional materials than written questions embedded in a text? It was decided to explore the instructional implications of interaction because it may be practical in self-instructional situations where students are concentrated in relatively small areas such as libraries or study halls which are attended by study monitors.

In this research, students (three at a time) read earth science text material while seated in library-like carrells. The text material in the form of a series of slides was projected onto a screen which was installed directly in front of each seated subject. The student

was allowed to read each slide for as long as he wished before switching to the next one.

The results showed that in comparison to a control group, the periodic questioning of students resulted in superior retention of text material. This effect was noted for material specifically related as well as incidental to the questions. Of particular significance was the finding that relative to the group that received TQs embedded as part of the text materials, those students who were asked the same question by a study monitor exhibited superior retention of text material as measured by a criterion test. These findings are suggestive that social interaction in the context of being questioned can promote the effective studying of written materials. Indeed based on these results it appears warranted to recommend that schools and libraries explore practical means by which staff can interact with students during study periods.

Overall, this paper has examined some theoretical models as well as some empirical findings dealing with the use of questioning events to control instructional objectives. With respect to theoretical concepts, it can be said that both the mathemagenic and cybernetic models have focused on the problem of what can be done to maximize the likelihood that the content of written materials will be learned and retained. In both models, considerable attention has been given to the control of studying behavior through the use of text related questions. In contrast, other instructional models have emphasized the importance of organizing and sequencing as a means of facilitating efficient learning. Perhaps the best example of the latter approach involves the notions of linear programing (*12*) in which bits of instructional material are sequenced in an incremental fashion toward some terminal behavior. While research on programing and related strategies has been promising (*15*) the findings have been far from conclusive. Indeed a reasonable conclusion is that a student can learn from written materials even though it is poorly organized from a programing standpoint. What seems important is that he study the material until it is mastered. Accordingly, it would seem most important to identify those instructional conditions which sustain the studying activities of the student. It would appear that questioning events is one such studying strategy.

Issues Concerning Control of Studying Behavior

There are a number of intriguing experimental issues regarding the control of studying behavior. A first consideration is a determination of the ways by which persistent long term studying may be achieved. Assuming that questions function as reinforcement for maintaining appropriate studying behaviors, how frequent should these events be presented to achieve persistency? Further what are the optimum schedules for presenting questions? Thus, should questions be presented on irregular or at fixed time intervals? This latter issue closely resembles research into schedules of reinforcement which has provided important information regarding the conditions under which operant behavior shows resistance to extinction.

A second area of inquiry concerns the specificity with which studying behaviors may be shaped through questions. While there is considerable evidence indicating that TQ's may facilitate the incidental learning of a broad range of text material, it is not yet known whether questions can also influence the learning and retention of a particular content area of an instructional document. Thus, for example, can a student learn the exact populations of cities in a geography passage through questioning events? If this is possible, what configuration and frequency of TQ's should be used to achieve this objective?

Finally, what are the kinds of environmental events or stimulus controls which are most effective in shaping and controlling mathemagenic or studying behaviors? Substantial evidence indicates that questions can be a useful instructional strategy. But it is likely that there are other classes of environmental events which may be equally potent. For example, some current research by Rothkopf and Bloom is evaluating the effects which relatively neutral social contacts by a study monitor with a student may have on his learning and retaining of written materials.

These are but a few of the many researchable issues dealing with the application of instructional questions in maximizing school learning outcomes. It is only through such systematic research and theory building that a science of instruction can be achieved.

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A Study of the Learning Modalities of Good and Poor First Grade Readers

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THE PURPOSE of this investigation was to study the differences in the learning modalities of good and poor first grade readers. More specifically, answers were sought to the following questions:

1. Are there differences in the learning modalities of good and poor first grade readers?
2. Across all modalities, do good readers and poor readers learn nonsense syllables equally well?
3. Across readers, do first graders learn nonsense syllables equally well by all modalities?
4. For good readers and poor readers is there a modality for learning nonsense syllables that is significantly superior to other modalities?

Background and Significance

Much of the research in reading during the last decade has been devoted to studies which have sought to compare one teaching method with another; many of these studies were conducted to find the best method for teaching reading. However, the results of these studies can be clearly summarized by Chall's statement (*1*) in her discussion of research on beginning reading:

> One of the most important things, if not *the* most important thing . . . learned from studying the existing research on beginning reading is that it says nothing consistently.

Further study of major research that has been completed since Chall's review supports the position that no one method of teaching beginning reading is good enough to be used to the exclusion of an-

other (*2*). As Durkin has stated, ". . . we have advanced to the realization that there is no single method of teaching beginning reading that is best for all children" (*11*).

Therefore, reading specialists and researchers must begin to look in new directions for ways of improving reading instruction rather than looking for *the* best method. As Gates has indicated (*6*), reading researchers need to abandon the idea that what is better on the average is superior for all; the learner must be seen as an individual.

There is a definite need to begin to match a particular teaching method with the learning style of a child. Selecting a teaching method that utilizes a child's modality strength is a procedure used in treating retarded readers in some reading clinics (*7*). This same procedure might be used in beginning reading instruction to determine an appropriate method for each child.

Mills (*11*) has developed an instrument that is designed ". . . to aid the remedial reading teacher in determining the student's ability to learn new words under different teaching procedures." This instrument, in essence, is used to determine whether a child learns best by the Visual Modality, the Phonic or Auditory Modality, the Kinesthetic Modality, or a combination of these modalities. The instrument or the procedure spelled out in the instrument has been used in a few research studies which dealt with older boys and girls or mentally retarded children (*1, 3, 8, 10*). None of these studies has attempted to look at the modality strengths and weaknesses of beginning readers.

This investigation was designed to study whether learning modality strengths and weaknesses are readily discernible in beginning readers. It was reasoned that information might be obtained that would lead to new procedures of grouping in the early stages of reading instruction. De Hirsch (*5*) believes that modality strength and weakness is of more than a theoretical interest and should largely determine teaching method. Since few studies have explored the problem, a definite need for empirical evidence does exist.

Definition of Terms

The following terms are used throughout this study as they are defined below:

Auditory Modality. A process of learning that utilizes primarily the sense of hearing.

Combination Modality. A process of learning that utilizes the senses of hearing, sight, and touch.

Kinesthetic Modality. A process of learning that emphasizes the sense of touch.

Visual Modality. A process of learning that utilizes primarily the sense of sight.

Learning Task. The acquisition of five nonsense syllables taught by a specified modality procedure.

Mastery. One correct response on all five nonsense syllables of the learning task.

Procedures

Original Sample. The original sample for the study was drawn from two elementary schools in Louisville, Kentucky which had been classified by school officials as middle class schools. There were eight first grade classrooms in the two schools.

Selection of Classrooms. Since the type of reading program to which each subject had been exposed could affect his modality preference, an attempt was made to assess the classrooms involved on this variable. Each teacher was asked to complete a questionnaire concerning the type of instruction that she normally used in teaching reading. The completed questionnaire was used as the basis for an interview. From these two sources it was concluded that the instruction given in the eight classrooms had been very similar. Therefore, no classroom was eliminated from the study.

Selection of the Final Sample. Selection of good and poor readers was based on two criteria: teacher classification of pupils' reading performance in class, and student performance on the Gates MacGinitie Reading Test, Primary A, Form 1.

Each teacher was asked to divide her class into three groups according to pupil reading performance in class. This classification was done prior to testing to insure that the teacher's judgment was not affected by the test results. All teacher ratings were on an absolute

scale and were not in relation to the pupil's ability. Groups I and III were designated good readers and poor readers respectively.

The second variable used for sample selection was the scores on the Gates MacGinitie Reading Test. The two subtest raw scores were averaged together for a total reading raw score. The scores were then listed in order from high to low for the total sample. The upper thirty percent was classified as good readers and the lower thirty percent as poor readers. These cut-off points have been used in previous research studies (*9*).

To be classified in the final sample as a good or a poor reader each subject had to be classified as a good or a poor reader on both of the above variables.

The sample of good and poor readers was screened on intelligence using the Peabody Picture Vocabulary Test (PPVT). Any subject falling beyond one standard deviation below the mean was eliminated. The mean for the PPVT is 100 and the standard deviation is 15.

One hundred ninety-eight first graders were tested for selection of the final sample. Seven of the subjects were eliminated because they were repeaters; three were eliminated on the basis of being classified according to school officials as perceptually handicapped; two were eliminated because they were new to the school and it was not possible to determine the type of instruction to which they had been exposed prior to the time of the study. A total of 186 first graders met the criteria necessary for inclusion in the pool of subjects from which the final sample was selected.

Thirty subjects were classified as poor readers and thirty-one were classified as good readers according to the criteria set forth by this study. All of the sixty-one subjects were given the PPVT. Only one was eliminated on the basis of intelligence. He was a poor reader.

The twenty-nine poor readers and thirty-one good readers were listed in random order. The first fifteen in each group were used as the subjects for the study.

Procedure for Studying Modalities. The procedure used for exploring learning modalities was based on the Mills Learning Methods Test. This instrument served as an instructional model with some revision. The major changes which were made involved 1) a change from the use of real words to the use of nonsense syllables, and 2)

more explicit teaching procedures. Nonsense syllables were used to insure that all subjects could be presented the same stimuli in each teaching modality. The changed teaching procedures took the form of a separate script to be followed in each modality presentation.

Selection of Nonsense Syllables. Nonsense syllables were selected from the combined Glaze and Krueger list (*13*). This list indicates the association value of the syllables as determined by two studies. Only those syllables that had a 70 percent association value or higher on both studies were used. These syllables were then rated according to pronounceability as determined by a panel of eleven graduate students and faculty at Indiana University. Those syllables rated as easy to pronounce but not resembling real words by a majority of the raters were used for the final selection of nonsense syllables. For each modality five of the syllables were randomly selected for the learning task and one syllable was used as a practice trial prior to the learning task. (See Table 1.) Consistent pronunciation of each syllable was maintained by the use of one examiner.

Teaching Modalities. Four teaching modalities were utilized: a Visual Modality, an Auditory Modality, a Kinesthetic Modality, and a Combination Modality. Each modality was designed to emphasize primarily one of the senses of sight, sound, touch, or a combination of these.

The Visual Modality utilized the aspects of word length and configuration for teaching. Each subject compared the length of the syllables and matched each syllable with its correct configuration.

The Auditory Modality used the apsects of sounds and rhyming words in teaching. The sound elements of the syllables were isolated and blended together and a rhyming word was identified.

The Kinesthetic Modality involved tracing and copying each syllable.

The Combination Modality utilized the aspects of sight, sound, and tracing in teaching. The Kinesthetic Modality syllables and the Combination Modality syllables were made of black sandpaper. All other syllables were printed in black India ink.

Each subject was individually taught five nonsense syllables by each of the four modality procedures. The order of modality presentation was randomized. The subjects were taught the syllables

TABLE 1

NONSENSE SYLLABLES SELECTED FOR EACH MODALITY

Visual	*Auditory*	*Kinesthetic*	*Combination*
wof*	dob*	kep	jen
wul	sek	pom	pek
sav	mal	lof	bux
mov	cag	gir	lon
tal	mul	jol	fes*
wif	kav	dat*	boc

*Indicates trial syllable

until they 1) mastered the task by correctly naming all five nonsense syllables as they were presented on the testing cycle, 2) completed ten trials of the teaching cycle followed by ten testing cycles, or 3) were given thirty minutes of instruction. The thirty minutes were counted as ten trials. Twenty-four hours later a test for retention was given. In order to control the teacher variable, this researcher instructed all subjects.

The data used for analysis were the number of trials to master the learning task (Acquisition Score) and the number of words retained over twenty-four hours (Retention Score).

To be included in the findings each subject had to be present for five consecutive days. Four subjects were lost due to absence and four were lost due to nonparticipation. Instruction of the subjects continued until there were 15 good readers and 15 poor readers.

Design and Analysis

The design employed with this study was a modified repeated measures design. When the mean IQ scores of the good and poor readers were compared using the t-test, it was found that they differed significantly (See Table 2). Therefore, analysis of covariance was used with intelligence serving as the covariate. Where significance was achieved at the .05 level of confidence, the Scheffé post-hoc test was used for specific comparisons.

TABLE 2

RESULTS OF THE T-TEST COMPARING THE MEAN IQ OF GOOD AND POOR READERS

Type of Reader	*Mean* PPVT IQ
Good	111.6
Poor	103.5
$t = 2.07$ ($df = 28$)	significant at .05 level

Summary of Major Results

Three of the six major comparisons using analysis of covariance were significant at the .05 level of confidence. The data for these comparisons are summarized in Tables 3 and 4. Space does not permit a complete presentation of the data for the specific comparisons test. On the basis of the analysis of covariance and the Scheffé post-hoc test for specific comparisons, the following results were obtained:

TABLE 3

SUMMARY OF ANAYSIS OF COVARIANCE FOR ACQUISITION SCORES

Source	*SS*	*df*	*M.S.*	*F*
(Good and Poor Readers Across Modalities)				
Readers	604.07	1	604.07	81.62**
Error	35.81	28	1.2788	
(Modalities With Good and Poor Readers Combined)				
Modalities	8.50	3	2.83	0.49
Error	483.21	83		
(Modality by Reader Interaction)				
Modality × Reader	49.68	3	16.56	2.84*
Error	483.21	83	5.82	

*significant at .05 level
**significant at .01 level

TABLE 4

SUMMARY OF ANALYSIS OF COVARIANCE FOR RETENTION SCORES

Source	*SS*	*df*	*M.S.*	*F*
(Good and Poor Readers Across Modalities)				
Readers	100.69	1	100.69	64.32**
Error	35.81	28	1.2788	
(Modalities With Good and Poor Readers Combined)				
Modalities	0.4941	3	0.1647	0.1029
Error	132.87	83	1.6008	
(Modality by Reader Interaction)				
Modality × Reader	7.5830	3	2.5277	1.579
Error	132.87	83	1.6008	

**significant at .01 level

1. Good readers as a group took significantly fewer trials than poor readers as a group to master the nonsense syllables in all modalities except the Visual Modality. The difference in the Visual Modality was not significant.

2. For good readers as a group and poor readers as a group, there was no modality significantly superior for the acquisition of nonsense syllables.

3. Good readers as a group retained significantly more nonsense syllables than the poor readers as a group when they were taught by the Kinesthetic Modality and the Combination Modality.

4. Within good readers as a group and within poor readers as a group, there was no modality significantly superior for retention of nonsense syllables.

5. No single modality pattern characterized the good readers as a group or the poor readers as a group. In other words, when the learning profiles of each individual were examined, no consistent pattern was found within either group.

6. Variation in acquisition and retention scores between modalities was greater for poor readers than for good readers.

Limitations

This study was conducted under highly controlled conditions which entailed a one-to-one teaching situation isolated from the classroom; therefore, since many of the extraneous variables which operate in the classroom were controlled, the generalizability of the findings will be limited to such learning conditions.

The population sampled was specialized in that it included only first year first graders of average and above average intelligence; these subjects were drawn from middle and upper middle-class schools as determined by school officials of a large city school system.

Other factors which limit the generalizability of the findings include the small sample size, the definition of mastery and the use of nonsense syllables instead of real words.

Conclusions

Based on the findings of this investigation and subject to the limitations cited above, the following conclusions seem warranted:

1. Modality preference in good and poor first grade readers appears to be an individual matter. No single mode of learning was superior for acquisition or retention for either good or poor readers.

2. Modality preference appeared to be more important for poor readers than for good readers. However, in some cases the acquisition and retention of the good readers appeared to be affected by the mode of presentation.

3. Although the results were not statistically significant, there was a trend in the data which indicated that poor readers as a group do not learn best by the Kinesthetic Modality and that good readers as a group do learn best by this modality.

4. Good readers as a group tend to learn nonsense syllables with fewer trials than do poor readers.

5. The learning task used in this investigation appears to be one that could be employed for identifying learning modality strengths and weaknesses. More exploration will be needed before the technique can be refined and used in actual classroom practice.

For example, the predictive validity of the procedure must be determined.

Educational Implications

Since this was a basic research investigation, generalizability of the findings to classroom practice is limited until further research can be conducted.

Modality preference was an individual matter. No one mode of learning was significantly superior for good readers or poor readers as a group. Therefore, future attempts to study learning modalities should attend to the learning of individuals and not be so concerned with groups.

A significant implication is that modality preference appears to be important enough to make a difference in how well individuals learn and retain words. For example, inspection of the individual profiles for poor readers shows that many of the subjects in this group learned and retained more syllables by one mode than by another. Although many of these differences are not statistically significant, it is likely that they are educationally significant for the individuals concerned. Even though mode of presentation appeared to be more important for poor readers, it also seemed to make enough difference to merit consideration for good readers.

Since the data seemed to indicate that poor readers do not learn words best by the Kinesthetic Modality, caution should be exercised in using this type of teaching procedure with all poor readers until further investigations can be conducted.

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The Development and Use of Film in the Language Experience Approach to Reading

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THE EXTENSION Department of the University of British Columbia, having allocated funds for the development of instructional materials, approached our department of education to ask if we were interested in undertaking a project related to the teaching of reading. We were interested and began planning a multimedia instructional package based on the language experience approach to beginning reading. This package included the production of a motion picture. The language experience approach was selected from among other programs because it seemed to offer many ways in which any teacher might extend and enrich her reading program.

Rationale of a Film Based on the Language Experience Approach

In the production of the motion picture it was necessary first to establish the bases underlying the language experience approach, since these bases would have to provide the performance criteria upon which the film would be constructed. So we considered the rationale back of the language experience approach. This rationale can be summed up as follows:

> What the child has experienced,
> of these things he can think,
> of these things he can talk,
> of these things he can write
> (or have someone write for him).
> What he has written,
> he can read, and
> others can read.

The film would have to illustrate these points if it were to represent the language experience approach to student teachers.

From this rationale, it seemed, *experience* should be considered as the foundation of the language experience approach. Surely in the initial stages of reading, one of the determinants of a child's success is the extent of his background of experience. ". . . children with rich backgrounds are more strongly equipped to attack the printed page than children of meager backgrounds because of enriched meaning and thought which the former bring to the task" (*1*). Experience provides the basis for all educational development. The meaningful concepts spring from the mind of the reader as he brings ". . . meaningful concepts to the symbols in terms of his own experience. Symbols are but empty shells. . . . It takes experience to fill them out with the meat of meaning" (*2*).

While all children entering school have had experiences, the teacher of the language experience approach recognizes the need to extend the experiential background of her pupils. Children who have had common experiences can think about, talk about, write about, and read about those experiences with meaning and understanding. The teacher doesn't have to assume a common thread of experiences in her students; she provides experiences. Through the provision of direct experiences she can avoid "verbalism" so evident in many schools today because these experiences are immediate and relevant.

In the development of the film, it was considered necessary to illustrate this provision of first-hand experiences. For example, the teacher introduced a poodle into the classroom and the film showed the children holding, petting, and observing the dog. This provided a stimulus for discussion of a variety of related firsthand experiences that provided the children with the concomitant use of all the language arts.

Language, which is based on experience, was the second major aspect of this approach to reading. The average six-year-old child, has, upon entering school, an astonishing wealth of language. The estimates of the functional speaking vocabulary of six-year-old children range from 2,500 words to 12,000 words. Dictated stories of first grade children have yielded a count of 3,331 words. It is,

according to Stauffer (*3*), safe to estimate the number of words known by the average six-year-old at about 7,500.

Not only has the six-year-old an extensive vocabulary, but he has also mastered much of the grammar of the English language. All parts of speech are used as well as every form of sentence structure. On the basis of sentence structure it is estimated that at this age the child's spoken language has reached 90 percent of its mature level. The child has learned the elements of structure in English that signal meaning. He is aware of the importance of word order, the use of function words, inflectional endings, stress, pitch, and junctures, as well as the use of interpreting gestures, and facial expressions.

In the film, there were many examples of improving children's use of language as it grew out of discussion, recording of sensory impressions, and composition of the group experience chart. For example one child's sentence, *The dog shaked himself,* was recorded and used for discussion purposes.

In another instance a child reassembled a sentence, trying it in these combinations: *She had, before she came, a bath. Before she came, she had a bath."* Then the child settled on *She had a bath before she came.*

Such instances as these provide opportunities for discussion among preservice teachers and illustrate that the language experience approach extends the child's vocabulary and language usage, and promotes flexibility.

The language experience approach offers opportunities for the development of problem solving or inquiry. In the initiation of this approach the teacher selects an event that will form the genesis of a variety of inquiries, experiences, and activities. The teacher, for example, may introduce a snake in the classroom. The children may observe and handle the snake, and record their impressions. Hopefully the children will begin to ask questions about snakes.

What do snakes eat?
Why don't snakes have any ears?
How are snakes born?

Hopefully, the children will begin to find answers to questions through direct experiences—observing, touching, asking other peo-

ple, looking at books, enjoying field trips or through vicarious experiences with films, filmstrips, pictures, and listening to stories. The interest in one snake can lead to the story of other snakes, to fishes, amphibians and other reptiles, and provide innumerable opportunities for speaking, listening, reading and writing.

In the film which was produced the teacher introduced a unit on pets. She brought a surprise to school, and the children tried to guess what the surprise was by asking questions which the teacher recorded as they were asked. The poodle provided the beginning of many other firsthand experiences. Slides were used in the package to show the development of the unit as it grew to include pets other than dogs—such as rabbits, turtles, and cats—until this interest was gradually encompassed into a study of the immediate neighborhood.

It can readily be seen that this program incorporated many subjects in the curriculum. Science and social studies became the center of the ongoing activities of the school day. Speaking, listening, reading, and writing became important in the process of learning to learn. Reading, instead of being launched through the artificial situations and language of the preprimer, was begun by using the language and experience of children for instruction. Reading became functional communication.

Finally, the language experience approach provides for individual differences. In each experience that the teacher provides, the children learn many things that are the same, but each child learns something that is particularly unique to him. On a field trip to a farm, for example, for one child this may be completely new. For another child this may be one of many such experiences, but the first in which he observes the baling of hay. Similarly, in the reading of the experience chart, one child may only learn the left-to-right sequence of print, while another child may learn to recognize most of the words. In the individually dictated stories, each child will talk about and read about his own ideas, thoughts, and feelings in his own words and in his own sentence patterns. In the presentation of information, each child can select his best and most effective mode of presentation and present the ideas he considers most important.

In the development of the films, the teacher and pupil activities were planned and selected to illustrate these important aspects of

the language experience approach. For the most part this was not too difficult. The use of slides to elaborate upon and extend certain aspects of the film was found to be necessary.

Advantages and Shortcomings

There are certain advantages in the production of films. Deciding upon the major concepts to be developed was essential and valuable in that it clarified personal convictions on the topic. Through this process, it was possible to present more closely aspects of reading that are desired. In the purchase of commercial films, a film is accepted because it includes some desirable aspects, but it also may include others that could well be omitted. It is hard to find a commercial film free of major shortcomings.

It was not unduly difficult to develop the film. The use of Super-8 millimeter film proved to be relatively inexpensive. The filming was done in a regular classroom, without major disruption of class routine. The equipment required was only two cameras. There was no need for special lighting.

The other advantages include the reality of representation. The film portrays a local teacher in a local school with local children working under local conditions. Identity with such a situation was not hard to command as the film presented to preservice teachers the normal working conditions in the district. The dimension of color added to the reality of the representation.

There appeared to be many other desirable possibilities in the use of film. Filming may be conducted at intervals over a period of time. It may present growth in learning and child development. It may be used to portray numerous short critical incidents in the teaching of reading.

One of the shortcomings of filming is the difficulty of obtaining adequate sound reproduction without expensive equipment. An attempt was made to obtain sound, but the results were so unsatisfactory that this was eventually eliminated. Synchronizing taped commentary to the film was not feasible as no two projectors or recorders run at the same speed. In the end this initial limitation proved an advantage, for in the use of the film, the instructor can

narrate and clarify the teaching situation without the distraction of sound. The college students, too, had to look with more careful perception as to what was going on while viewing a particular situation.

Film production is time consuming, particularly the editing of the film. It is also impossible to portray everything about the language experience approach on film. The use of color slides to supplement the film, we found, was necessary. The slides were used successfully in showing the relationship of the film topic to the greater unit being developed. Other aspects of the program, such as service charts and individual activities, were incorporated in this way.

In the use of the films and slides with both preservice and inservice teachers, the results have been most satisfactory. The materials provided a stimulus for discussion, for further readings and for sources of ideas that teachers can put into practice immediately. The overall packet which we produced included a commentary, discussion questions, articles, and a bibliography, as well as two 12 minute films and 60 slides. The reception of these materials by both preservice and inservice teachers has been most enthusiastic. Not all teachers are converts to this approach, but all find some aspect or aspects that can be readily incorporated into their existing programs, to provide an extended base on which to teach their pupils to read.

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Programed Approach vs. Conventional Approach Using a Highly Consistent Sound-Symbol System of Reading

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THE PURPOSE of this study was to reveal the effects on reading achievement of two primary reading programs using a programed format (with and without audio-supplement) and a conventional format (the programed format deprogramed) in a highly consistent sound-symbol system of reading at three primary grade levels. In addition to comparing treatments per se, it was the purpose of this study to explore the degree of suitability of programed texts in reading instruction for primary children a) at various intelligence levels, b) at various age levels, and c) in different sex groups.

Statement of the Problem

Will the experimental treatments used produce any significant main effects at each grade level?

Will there be any overall significance relative to treatments within the high and low levels of mental age and chronological age and within the male and female sex categories for the dependent variables (measures of decoding skill and measures of comprehension skill)?

Definitions of Key Terms

Reading. The definition of reading used in this study states that reading is the act of turning the stimulus of the graphic shapes on a surface back into speech. This is a definition used by many linguists. The commonly accepted definition of reading states that reading is getting meaning from the print on the page. Leonard

Bloomfield was one of the first individuals to differentiate between the *act of reading* (recognition of grapheme-phoneme correspondences) and the *goal of reading* (comprehension).

The shapes represent speech, and meaning is not found in the marks *but in the speech* which the marks represent. Some linguists would say that a child can read when he can recognize symbol-sound correspondence to the point that he can respond to the marks with appropriate speech (*1*). This can be called "reading phase one." Also included in this study is an extension of the above definition of reading. This extension says that a concomitant of the reading act described above is a spontaneous and/or provoked movement by the reader toward increasing his comprehension of what he reads. This is a process of thinking in which the reader uses his background of knowledge and feelings to interpret the meaning the author has tried to communicate; this is called "reading phase two."

Reading is operationally defined by the dependent variables represented by the subtests of the criterion measures used. The subtests measured decoding skills and comprehension skills.

"Deprogramed" text. Deprogramed text refers to a modified programed text used by students in Treatment 1. Deprograming was achieved by stapling the immediate feedback columns on the pages of the linear text so the learner could not make use of the immediate feedback information.

Study Design and Theoretical Framework

The design of this study was an experimental pretest post-test control group design. The groups, which were called "treatment" groups, were experimental (Treatment Group 2 and Treatment Group 3) and controlled (Treatment Group 1).

Treatment 1 (T_1) followed a conventional deprogramed approach. Commercial programed materials were deprogramed by stapling the immediate feedback columns on the pages of the linear text so the learner could not make use of the immediate feedback information. The deprogramed format permitted conventional, teacher-directed, group-oriented reading instruction. Some conventional strategies used were: oral reading in a small group setting,

development of sight word vocabulary, teacher-guided small group preparation, and silent reading with teacher-directed and teacher-paced follow up. T_1 teachers used a dual analytic-synthetic approach to reading in contrast to the singular synthetic approach used in T_2 and T_3.

Treatment 2 (T_2) used the same commercial series as T_1 but in the prescribed programed way. The approach was synthetic, inductive, and very individualized. Sight word instruction and other analytic strategies were absent from this treatment. Student problems of word recognition and analysis were approached inductively so students could learn to synthesize word elements into whole words. T_2 was student-manipulated, self-directed, autoinstructional, and highly individualized.

Treatment 3 (T_3) used the same programed series as T_2. The inductive, synthetic strategies common in T_2 were used in T_3. Like T_2, T_3 was student-manipulated, self-directed, autoinstructional, and highly individualized. The chief difference between T_2 and T_3 was the audio-supplement used in T_3. The T_3 audio-supplement provided additional reinforcement through the use of teacher-made tapes and student-made tapes. The hard cover story books which accompany the programed series were all recorded for student use (one to two hours per week). Teacher-prepared lessons for seat work were also taped.

In contrast to T_2 and T_3 teachers, T_1 teachers addressed small "individual" groups who then worked at a place and pace common to the entire (individual) group. Teachers in T_2 and T_3 briefly addressed the class group. Class members then proceeded to work at their individual place and pace in the program.

Some educators would have us believe that the salient features of programed instruction (use of behavioral goals, sequential organization of the material, active student involvement, use of individual rates of progress, use of immediate feedback, and the reinforcement principle) are unique to programed methodology. The writer rejects this assumption and subscribes to the belief that programed elements are also evident in conventional and nonprogramed courses. The rationale for this study holds that while programed principles may be found sometimes in conventional instruction, they are *always*

found at work in programed instruction and are thus readily observable and easily measured. The reading program under investigation is autoinstructional requiring a student-centered methodology, encouraging individual rates of progress and operating under the immediate feedback and reinforcement principle.

Main Hypotheses

The null hypotheses of this study required the testing of the following effects at three primary grade levels:

1. The effect of reading programs emphasizing a synthetic approach with a high degree of consistency in grapheme-phoneme correspondence in the vocabulary used, upon reading achievement defined in terms of specific dependent variables in contrast to the effect of a program using the same basic vocabulary but focusing on a synthetic-analytic approach and concomitant vocabulary irregularities.

2. The effect of a programed approach versus a deprogramed or conventional approach upon reading achievement.

3. The effect of an enriched programed approach through the use of *additional* audio-reinforcement.

The following hypotheses are stated in the null form for purposes of testing at the first grade level:

1. First grade reading programs possessing a high degree of consistency in grapheme-phoneme correspondences in the vocabulary introduced in a programed approach (Program 2, Program 3) will not produce achievement scores which differ significantly in a) word reading, b) vocabulary, c) paragraph meaning, d) word study skills, e) regular word identification, and f) irregular word identification from the same achievement scores of the reading program possessing a high degree of consistency in grapheme-phoneme correspondences in the vocabulary introduced in a conventional approach (Program 1).

2. First grade reading programs possessing a high degree of consistency in grapheme-phoneme correspondences in the vocabulary introduced in an audio-supplemented programed approach (Program 3) will not produce achievement scores which differ signifi-

cantly in a) word reading, b) vocabulary, c) paragraph meaning, d) word study skills, e) regular word identification, and f) irregular word identification from the same achievement scores of the reading program possessing a high degree of consistency in grapheme-phoneme correspondences in the vocabulary introduced in a nonaudio-supplemented programed approach (Program 2).

The null hypotheses were stated in a similar way for grades two and three.

Overview of Analyses of Data, Main Findings and Conclusions

A one-way analysis of variance was used to compare treatments at each grade level. The F test was used in testing for significant treatment effects. If no significant treatment effects were found, no attempt was made to compare individual treatment groups except in cases where the observed F value was close to the critical region. Where the preliminary analysis of variance and the F test showed overall significance, the Scheffé method was used to test the significance of the post hoc comparisons.

A two-way analysis of variance and the F test were used to reveal overall significance relative to treatments within the high and low levels of mental age and chronological age, and within the male and female sex categories for all the dependent variables. Contrasts for treatments within the categories of the independent variables were done if the F values for the appropriate two-way analyses of variance values were significant. In accordance with Scheffé's recommendation, tests on nested variables were done at $.975\ \alpha = .025$, and contrasts were done at $.95\ \alpha = .05$.

First Grade Level

1. It was concluded that the auto-instructional program with audio-supplement (T_3) produced significantly higher reading scores (on all subtests except vocabulary) than the conventional program (T_1). (First Hypothesis: Part One.)

2. It was concluded that the auto-instructional program *without* audio-supplement (T_2) *did not* produce any significantly higher reading scores than the conventional program (T_1).

T_1 (conventional) *did* produce significantly higher regular word identification scores than T_2. (First Hypothesis: Part Two.)

3. It was concluded that the auto-instructional program with audio-supplement (T_3) produced significantly higher reading scores (on all subtests except vocabulary) than the auto-instructional program without audio-supplement (T_2). (Second Hypothesis.)

Second Grade Level

1. It was concluded that the auto-instructional program with audio-supplement (T_3) *did not* produce any significantly higher reading scores than the conventional program (T_1). (Third Hypothesis: Part One.)

T_1 (conventional) *did* produce significantly higher achievement scores in word study skills than T_3 (audio).

2. It was concluded that the auto-instructional program *without* audio-supplement (T_2) *did* produce *some* significantly higher reading scores (word study skills, regular word identification, and irregular word identification) when compared with the conventional program (T_1). (Third Hypothesis: Part Two.)

In summary, the programed learning of T_2 (non-audio) does seem to be more productive than the conventional learning at the second grade level on all tests, though not significantly.

3. It was concluded that the auto-instructional program with audio-supplement (T_3) *did not* produce any significantly higher reading scores than the auto-instructional program without audio-supplement (T_2). (Fourth Hypothesis: Part One.)

In an unexpected reversal of direction at year two, the auto-instructional program *without* audio-reinforcement (T_2) *produced significantly higher* a) word study skills, b) regular word identification, and c) irregular word identification scores than the auto-instructional program *with* audio-supplement (T_3).

The second grade results indicate that programed instruction per se seems to be appropriate for seven-year-olds. This should be studied further.

Third Grade Level

The null hypotheses *were not* rejected at the third grade level. On the basis of the mean values achieved by each third grade group,

the programed groups (T_2 and T_3) did about as well as (in a few instances better than) the conventional groups (T_1). These results are in the direction of the results of related research which report better performance from programed instruction when compared with conventional instruction.

Exploratory Questions—Main Findings and Conclusions

Three independent variables were stated in three exploratory questions and applied to all three primary levels. The three variables were: mental age, chronological age, and sex. The exploratory questions investigated the relationship between the independent background variables and the dependent variables of word reading, vocabulary, word meaning, paragraph meaning, word study skills, regular word identification, and irregular word identification.

At the first grade level T_3 was the most effective treatment within the high mental age level, within the high chronological age level, and between treatments for males for all subtests except vocabulary in the high mental age and male categories and except regular word identification in the high chronological age category.

Within the low mental age level and within the low chronological age level for grade one, T_3 produced significantly higher word study skills scores.

Within the high mental age level for grade one, T_1 produced significantly higher regular word identification scores than T_2.

In grade one between treatments for females, T_3 was the most effective treatment in producing higher regular and irregular word identification scores.

In grade two within the high mental age level, T_2 produced significantly higher scores in word study skills, and regular and irregular word identification. Within the low mental age level at grade two, T_2 produced significantly higher regular and irregular word identification scores.

Finally, at grade two within the high and low chronological age levels and between treatments for males, T_2 produced significantly higher scores in the area of word study skills. Also, the males in grade two in T_1 achieved significantly higher word study skills scores than males in T_3.

It should be noted that T_3 results reported above are significantly higher than *both* T_1 and T_2 results for most variables. The T_2 results reported above are significantly higher than the T_1 and T_3 results for most of the variables reported.

The findings for year three were not significant.

In summary, the use of synthetic methods with programed materials in teaching reading in the primary grades receives strong support from this study. Many of the findings and conclusions in this study reflect the findings and conclusions found in the related literature which is reported in detail in the original volume of this work.

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PART THREE. TEACHER IMPROVEMENT IN READING

The Teacher and the Improvement of Reading

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IN ONE RESPECT AT LEAST we can approach the 1970s with a sense of amusement. After a decade of polished and scientific research we have rediscovered what the philosophers from the days of Confucius have been telling us. The teacher is the most significant factor in determining whether children will be successful in learning. This is not to say that materials and methods are of no consequence but rather to suggest that the artful teacher is the essential factor in a successful program. All else—materials, methods, organization—serve a supportive role to the good teacher.

The evidence for this generalization comes from many respected sources of which the following are representative. Harris and Morrison (*4*) in the final report of their monumental CRAFT Project reported that differences in mean reading scores within each method were larger than differences between methods and approaches. They concluded, "the results of the study here indicated that the teacher is far more important than the method. Costly procedures such as smaller classes and provision of auxiliary personnel may continue to give disappointing results if teaching skills are not improved."

Ramsey (*7*) in an evaluation of three grouping procedures for teaching reading concluded, "The thing that the study probably illustrates most clearly is that the influence of the teacher is greater than that of a particular method, a certain variety of materials, or a specific plan of organization. Given a good teacher other factors in teaching reading tend to pale to insignificance."

Bond and Dykstra (*2*) in their final report for the coordinating center for the first grade studies concluded, "future research might well center on teacher and learning situation characteristics rather than method and materials. The tremendous range among classrooms within any method points out the importance of elements in the learning situation over and above the methods employed. To im-

prove reading instruction it is necessary to train better teachers of reading than to expect a panacea in the form of materials."

These samples could be multiplied many times over from the research literature. They suggest that attention must be paid to the ways in which teachers can be better prepared to *teach* reading. They also suggest that it is futile to look for simple panaceas independent of the teaching function. Former Commissioner Allen was correct in his October 1969 statement at the hearing before the U.S. House of Representatives Committee on Education and Labor. In response to Representative Hathaway's comment (*8*), "we should have some uniform professional opinion on reading through research before we go out and start getting the school to go ahead with it. The present state of research just last year was that there was still a toss-up whether the sight reading or phonic reading method was better." Allen replied, "There is a controversy over the subject of teaching reading. . . . I think the teacher in the local community must decide what system works best for the children in his care."

This statement puts the entire matter in proper perspective. The teacher selects methods and materials to enhance the learning of his students. Thus, the teacher is the key to the entire enterprise.

The Teacher and the Right to Read Effort

Fellow teachers, now that we have determined that we are number one, what are the implications of the Right to Read effort for us in our schools and classrooms?

The most crucial element in the Right to Read effort as the educational target for the 70s is that *all* children should be taught to read as a basic right. This is not a new concept in American education. In fact, the first political document in the English speaking world to suggest that all children should be taught to read was drawn by the Massachusetts Assembly in 1642. It stated in part that the officials of each town were to determine from time to time if ". . . the children were being taught to read and understand the principles of religion and the capital laws of the country."

Needless to say this goal is yet to be accomplished. Much progress has been made, many communities in the nation have essen-

tially reached it. In too many places, however, an awesome task is still before us. Allen has suggested that across the nation the schools are 75 percent effective in teaching all children to read successfully. Samuel Sava, the executive secretary of IDEA speaking at the Indiana conference on *Reading and the National Interest* suggested that the range of effectiveness was from 10 percent in some inner-city schools to well over 90 percent in more favored schools.

Progress has not and will not come easily for change necessarily means disturbing the status quo, upsetting vested interests, and withstanding severe abuse from those who for their own reasons actively resist providing a basic level of education for all. Not the least of our tasks as a people is the reordering of our national priorities so that adequate resources are provided to get the job done. Schools are suffering from a lack of support reflected in the fact that only 1.5 percent of budgeted local, state, and national resources are spent for education. This compared with 70 percent of our resources for past, present, and future war efforts should cause us to reflect most seriously upon our national priorities.

Assuming that the scene can be set for us, the professionals, to function effectively, what must we do to make the right for all to learn a reality?

Our first responsibility is to accept the target as a realistic one. Philosophically this is easy enough to do. Pragmatically it will be difficult for we have been conditioned by our training and past practice to expect a sizable group of students to have difficulty and in fact fail to learn. We have developed a system of explaining human aptitude and achievement by laws of probability as exemplified in the normal curve. This provides an easy out to justify the notion that many can not learn. Recent research quite dramatically destroys this excuse. John Carroll, for example, demonstrates that for 90 plus percent of the children in school, level of achievement is more a function of time than it is of aptitude.

Therefore, if we learn to adjust instruction to the characteristics of learners, they can learn. Implied is a willingness to adjust time, methods, and materials so that all might be successful.

American schools are teacher oriented rather than student oriented. As a consequence decisions in regard to school organization,

materials, and instructions are almost totally based upon groups of students. However, regardless of how decisions are made final judgments of the effectiveness of the school must be made on the basis of how well individuals learn. The evidence for quality instruction will be found not in group averages but rather in the degree to which each child learns. This may be a subtle shift in viewpoint but it is crucial to guide the teacher in selecting those options which will lead to improved instruction.

Of the factors—time, materials, instruction, and organization —providing the time necessary to master what is learned is the most crucial. American schools in their striving for efficiency as conceived by the business community have become tyrannized by the calendar and the clock. Time dictates the organization of the school, the structuring of the curriculum, the flow of instruction, and the packaging of materials. Nowhere in this system, which is production technique oriented, does one find a readily visible concern for a product of the system that has truly mastered what the school is attempting to teach.

Nowhere, that is, except in the practice of good teachers who have revolted against the restraints imposed by the system's schedules and have concerned themselves with the learning of their students. Rather than teaching a system of this or that—good teachers are aware that learning is what the students do and that this is the real point for having schools in the first place. This is just another way of saying that the top priority must be given to provide the time that all will learn. All other factors will then fall in line.

Providing time to learn is immensely easier to philosophize about than to accomplish. This idea is indeed revolutionary. It challenges the current goals of the school, its organization, the way in which materials are developed, and the manner in which learning is appraised. If time is to be provided that all may learn, the graded school becomes obsolete and the standardized test irrelevant.

When schools accept learning for mastery as a top priority, classrooms are characterized by a concern that the learner in fact understands what it is that he is to learn. What a simple minded and obvious statement! Perhaps, but one is struck by the lack of understanding on the part of learners when instruction is structured by the curriculum guide and the textbook rather than by the learning needs

of the students. Not all children learn well verbally. Other approaches to learning exist but we still have far to go in taking advantage of the range of opportunities that technology and the various media have made available to us. (We should all voice a hearty, "Thank God for Sesame Street.")

To extend the picture of the teacher and the Right to Read effort it is important to focus upon the role of the learner. He, too, has his responsibilities. His commitment must be as real and as complete as that of the teacher. In the final analysis the learner must learn. To this end he must provide the drive and he must persevere until he has mastered whatever is to be learned. Yes, indeed, the teacher can stimulate and motivate, he can organize and he can direct, but always the learner learns. Some thoughtful observers suggest that this may be one of the major obstacles that the schools will face in attempting to achieve the goal that all will learn. In a sense, schools and teachers are salesmen. Part of their strategy must be to lead students to want to buy their product. This task goes beyond the student to selling his parents, his peers, and the community on the worthwhileness of education and the role of the school.

Business Influence

In several places in this discussion you may wonder about statements and terms that seem to reflect an influence of the business community. The fact is that business concepts are influencing educational practice. The teacher is told that he must be accountable for the results of his efforts. He is also told that the best way to solve educational problems is to put schools on a competing basis (*5*) much in the way that the Defense Department has encouraged competing services to develop weapons systems independently, in the hope that such a procedure will result in better weapons.

A professor of business (*3*) suggests a way of putting reading education in proper perspective and making it successful. Through the words of a fictitious character he develops the following principles:

1. If it's literacy you're after, focus on this, not on curricula,

hours of schooling, uniforms, the calibre and pay of teachers, how many square feet of floor space, or what not. The question is, how people can learn to read effectively, not what kinds of schools they go to.

2. Lots of people have learned to read well in a few months or a year. So why worry about several years of basic education.
3. Education is traditionally in the public sector. Why?
4. If the payoff of education is as high as we all believe it is, then the state should be willing to pay individuals to learn.
5. Anyone who can make a major breakthrough in teaching reading should be liberally rewarded for his efforts.
6. If people want diplomas, let's give them diplomas!

The government in this narrative acted upon these suggestions by setting up a private enterprise reward system for basic literacy. It agreed to pay $50 to any citizen who could pass an intensive sixth grade examination in reading and math. The person passing the exam also named another person who received $10. Entrepreneurs followed by opening literacy schools and teaching people to read in return for the $10 thus received. Institutions using all types of instruction sprang up but only the successful ones survived. When gifted people realized there was money in education they joined the enterprise. Within five years the fictitious government had doubled its literates. Classroom shortage ended and learning times dropped.

Fantastic? Not at all, for Professor Farmer is proving to be a modern day Nostradamus. In the December 15, 1969 issue of the *National Observer* a feature article entitled, "A Private Company Teaches Students for Cash," reported the following:

1. A private company contracted with a school district to teach reading.
2. The company will be paid $80 for each student it can raise one grade level in 80 hours of instruction. The payment goes up progressively to $106.67 if the student can improve one year in 60 hours or less. Likewise, the payment goes down if more time is taken. If after 168 hours the student still has not improved one grade level the company receives no payment.

3. Students are rewarded with S and H Green Stamps and with free rest periods for successfully completing learning tasks.
4. Teachers are paid a bonus for their successes.

This is not from crystal gazing into some fuzzy future, but represents today's realities.

The New Teacher Role

We have established that the teacher is the key to the improvement of reading instruction; we have reviewed some of the implications of the Right to Read effort that are of significance to the teacher role; and we have looked at some of the influences from the business community that may have an effect upon the teaching of reading in the future. Where do we go from here?

The first and most obvious place is teacher education. In his distinguished leaders address at the Kansas City Convention, Artley (*1*) suggested that current descriptions of the good teacher contain the same characteristics that one would expect in a good bar girl. She is cooperative, sympathetic, poised, well-groomed, healthy, imaginative, gets along well with her coworkers and her principal, and gets her reports in on time. How does she perform in a reading class? It is difficult to determine, but, to listen to the teacher's complaints, her preparation never equalled that required to become a good teacher *of reading*.

The goal that all should learn and the comments made earlier suggest that the teacher must be prepared to be a master diagnostician capable of determining what is needed to make it possible for those many children whose needs are demonstrably different from those clustered in the middle of the group. The answer is not to be found in discussing method A versus method B, but rather in determining what to do to make it possible for learners to learn. This casts the teacher as a master decision-maker selecting this approach and that material, using this device or that person—paraprofessional or specialist—to insure that students are progressing toward clearly defined goals.

Teacher education is beginning to bubble. Colleges and univer-

sities are revitalizing their programs in many places through the stimulation of the USOE Triple T program, pressure from the schools and society, and the discovery of teacher education by researchers and innovators. The IRA Committee on Teacher Education, headed by Dr. Artley, is making excellent progress preparing a definitive volume on the preparation of teachers to teach reading. New developments such as the self-analysis of one's own recorded teaching and microteaching appear promising in increasing the effectiveness of preservice training.

Not to be overlooked when considering the teacher role is the function of auxiliary personnel such as teacher aides, paraprofessionals, and tutors. The work of Ellson and his colleagues indicates that when trained and directed in their efforts these people have much to contribute to the school's success in teaching reading.

The teacher and the schools have yet another role to play. Critics of teacher education programs generally criticize the isolation of the teachers of teachers from the reality of the school and of students. Reality *is* of significance when preparing a professional and this criticism is valid. Regardless of how the necessary reality is to be accomplished, however, always implied is that the school and its teachers will become partners in the preparation of teachers. This, in fact, is one of the prime purposes of the Educational Professional Development Act (EPDA). In several centers about the country, pilot programs have been developed that are attempting to combine the effects of colleges and school systems in the preparation of teachers. Unfortunately schools and teachers are not always willing to participate. Do they not also have a responsibility toward better preparing teachers? Upgrading America's schools is a job for the entire profession and will demand total commitment from all.

The Teacher

National committees and commissions have been formed, a consortium of professional organizations has been organized, and a major federal program has been launched all to find ways to better prepare teachers to teach. One can truly view the future with optimism as these efforts reflect a more general ferment that will most

certainly lead to change. The nation's schools and teaching force will most assuredly become more effective.

It would be well, however, to remind ourselves that there are certain qualities of good teachers that are ageless. The people who have most influenced the lives of men through the ages have carried the title—teacher. Mohammad, Confucius, Buddha, Christ were all called "teacher." Confucius, in fact, wrote essays about teachers and teaching.

There is a vital difference between a teacher and a technician in the classroom. Visits to classrooms too often leave one saddened with the realization that those responsible for teaching are only going through a ritual to which they are not giving of themselves. We tend to rely on factors outside ourselves that can be manipulated—methods and materials. It is time to forthrightly acknowledge that what we are as human beings is important too. Remember, the teacher makes the difference. How? Observation in hundreds of classrooms as well as the philosopher's essays suggest the following as characteristics of the successful teacher:

1. The good teacher is characterized by faith in what he is doing. He is recognized by his strength of person and purpose.
2. A good teacher is characterized by respect for his pupils—all of them. He is not cynical. He sees the good in his pupils and tries to help them realize the best they have in them. Each of us here today could give examples of teachers who pushed us upward because they had faith in and respect for us. If we are truly teachers we can do no less. William Lyon Phelps who was affectionately known as Billy to his students at Yale once said, "It is an absolute rule, to which there are no exceptions under any conceivable circumstances, never to use sarcasm toward an individual student. . . . By doing it, it is probable that you have killed forever the chance to influence the victim of your tyranny. This boy or girl is lost to you . . ." (*6*). Basic to the American dream is the dignity of the individual. Where better to recognize this than in the classroom.
3. A good teacher recognizes that learning needs direction.

This makes professional preparation important. We need to know the learner, the subject matter, and the society to be served. This characteristic is timeless as the following quotation from Confucius suggests. In his essay on the Ideal Teacher, Confucius said—"Therefore in his teaching the superior man guides his students, but does not pull them along; he urges them to go forward and does not suppress them; he opens the way but does not take them to the place. Guiding without pulling makes the process of learning gentle; urging without suppressing makes the process of learning easy; and opening the way without leading the students to the place makes them think for themselves.

4. The good teacher recognizes that both learning and teaching are creative activities. They can not be reduced to pat formulas.
5. The good teacher is concerned with self-improvement. He is identified by a basic dissatisfaction and constant desire to do better.
6. The good teacher is recognized by his enthusiasm. William Lyon Phelps stated it this way: "Nothing is too minute or too trivial that concerns the great art of teaching. Constant and tremendous enthusiasm for the subject taught is essential. While one is actually teaching it, this thing, whatever it may be, should seem to be the most important thing in time or eternity." This type of statement reflects a genuine love for teaching. It also suggests that it makes the teacher an actor playing a role of always being concerned about the performance. There are, of course, many additional characteristics that could be added to this list. These will suffice to make the point that when we speak of the teachers role in improving reading instruction it is essential to attend to the teacher as a human force and all that this implies.

Conclusion

In conclusion, the teacher is the essential element in determining whether the Right to Read effort will be successful. To this

end, every way possible needs to be explored to make the teacher more effective in the classroom. However, in this search it is essential that we maintain and indeed foster the human qualities that have always characterized the good teacher.

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An Analysis of Teacher Effectiveness in Classroom Instruction in Reading

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ANY DISCUSSION of the essential components of an effective reading program will include one or more of the following elements: 1) the students; 2) the teacher; 3) teaching method; 4) instructional materials; and 5) ancillary personnel and resources, e.g., the librarian and the library. Research findings (*1, 2, 5*) have made it abundantly clear that the single most important element is the teacher. All of the other factors are important, of course, but pupil success or failure is directly related to teacher effectiveness.

But what are the characteristics of an effective reading teacher? How does one become a successful teacher of reading? It goes without saying that indisputable answers to these questions have not yet been discovered, but there is available much knowledge to guide those who would heed it. This report will present some of this information along with suggestions for incorporating it into teaching behavior.

In this discussion, teaching effectiveness will be divided into two categories, what the teacher is—how he acts and interacts with children on the personal level; and what the teacher does—how he performs his instructional duties. These categories are roughly parallel to the affective and cognitive domains of behavior.

Personal Characteristics of Teachers

Research with teachers in general furnishes some insights into affective behaviors that might reasonably be generalized and applied to teachers of reading. A succinct review of this research is provided by Hamacheck (*4*).

Investigations of the personal characteristics of teachers revealed that effective teachers have a sense of humor, they are fair, empathetic, more democratic than autocratic, and they have good rapport with students on an individual or group basis. Effective teachers

also view themselves as being related to people rather than withdrawn. They feel adequate, trustworthy, wanted, and worthy rather than the opposite of these feelings. In addition to feeling good about themselves, teachers who are effective have a more positive view of students and adults and a more accepting attitude toward the ideas and values of others.

The classroom behaviors of effective teachers seem to reflect more of the following characteristics (*4*):

1. Willingness to be flexible, to be direct or indirect as the situation demands.
2. Ability to perceive the world from the student's point of view.
3. Ability to personalize their teaching.
4. Willingness to experiment, to try out new things.
5. Skill in asking questions (as opposed to seeing self as a kind of answering service).
6. Knowledge of subject matter and related areas.
7. Provision of well-established examination procedures.
8. Provision of definite study helps.
9. Reflection of an appreciative attitude (evidenced by nods, comments, smiles).
10. Use of conversational manner in teaching—informal, easy style.

Harris (*6*) reports on several studies that relate specifically to reading instruction. In a study comparing a language experience approach with a skills-centered approach, he and his collaborators found that teachers in the former method received good results with praise and poor results with criticism. Teachers in the skills-centered approach seemed to get better results when they avoided excessive praise or criticism and concentrated on skills instruction.

From other studies Harris drew these conclusions:

1. Mild criticism does not seem to effect achievement, but strong criticism negatively affects achievement.
2. No relation between the frequency of use of praise and achievement in general has been found.
3. Praise seems to be more effective when issued in relation to a specific student contribution.

Instructional Activities of Teachers

Very few are the studies that have investigated the specific instructional activities of reading teachers, and even fewer have checked the relationship between these activities and student achievement.

Harris reported that good achievement tends to be associated with a high level of verbal interchange between teacher and students. Such an interchange supposedly indicates an active discussion between teacher and pupils, probably with an exchange of questions and answers.

Whereas Harris did not report on the nature of the questions asked in the verbal interchange, Guszak (*3*) did analyze the questioning strategies of reading teachers. He did not, however, correlate these strategies with student achievement.

The initial task in Guszak's study was to categorize the types of questions teachers ask in reading lessons. He found that most teacher questions were of the following six types:

1. Recognition—locating information from reading context.
2. Recall—recalling a fact previously read.
3. Translation—changing words, ideas, and pictures into different symbolic form.
4. Conjecture—anticipating what will or might happen without providing a rationale.
5. Explanation—providing a rationale for a response based on the context or even going beyond the context.
6. Evaluation—making judgments based on values rather than fact or inferences.

From his observations in a number of second, fourth, and sixth grade classrooms, Guszak found that 56.9 percent of all questions asked were of the recall type. Recognition questions were asked 13.9 percent of the time, and 15.3 percent were evaluation type questions, but most of the evaluation questions could be answered by a simple "yes" or "no" and required little depth of thought. Conjecture and explanation questions, which require a higher level of thinking, constituted only 6.5 and 7.2 percent, respectively, of the total questions asked.

In concluding, Guszak pointed out that most of the recall questions focused on trivial facts from the story. These questions tended to lead children away from the literal understanding of the broad text which should be the goal of comprehension instruction. He also warned that teachers who encourage the unsupported value judgments that are called for in evaluation type questions may be conditioning students for irresponsible citizenship. To combat these deficiencies in questioning strategies, Guszak recommends that teachers tape their lessons and listen to them carefully afterwards.

A constellation of teaching procedures and teacher skills were found to be associated with high reading achievement in studies by Pescosolido (*7*) and Wade (*8*).

Pescosolido observed twenty-eight fourth grade teachers twice each in an attempt to assess their teaching performance when teaching reading. He then measured the reading achievement of the students in these classes with the California Reading Test. The correlation between gains in reading and the teacher rating was .74. Seven teaching procedures were found to have a high relationship to growth in reading; 1) systematic and meaningful vocabulary development, 2) availability and use of a variety of instructional materials, 3) making appraisals of pupil attitudes toward teaching, 4) provision for a constructive independent reading program, 5) development of purposes for reading, 6) reading silently prior to oral reading, and 7) adequate preparation by the teacher for the reading lesson.

Wade constructed an instrument to test a group of teacher skills used in reading instruction in grades two through five. These skills included choosing and evaluating teaching materials, diagnosing and correcting deficiencies in certain skill areas, judging pupils' reading ability, evaluating pupil progress, and grouping homogeneously for instruction. The test was administered to a group of employed teachers, to student teachers with sixteen weeks' teaching experience, and to a group of undergraduates in education. On the test the employed teachers outscored the student teachers who outscored the undergraduates. In addition, it was found that children taught by teachers who scored in the highest quartile made significantly greater

gains in reading achievement than did students taught by teachers in the lowest quartile.

From these research investigations, at least two conclusions can be drawn: 1) teachers are the success ingredient in reading instruction; and 2) teachers do differ in their teaching effectiveness, and these differences are detectable in pupil achievement.

Just exactly what it is that makes the difference in teaching effectiveness has not yet been definitely established through research. But do we need research to tell us what makes reading teachers effective? The real need now is to put into practice those things that are already known about good reading instruction. A review of some of these "knowns" in the cognitive domain of teacher behavior might be helpful at this point.

"Knowns" about Good Reading Instruction

1. To read, children must be able to recognize words and get meaning from these words.
2. To do these two things effectively, children must master a wide variety of intricate skills.
3. It is the responsibility of the teacher to know these skills and to teach each child so that he masters them.
4. To fulfill this obligation, teachers must know the needs of each child and provide instruction appropriate to these needs.
5. Children's needs, not books or curriculum guides or grade level designations, must determine the instruction children receive.

It will be noted that these teacher behaviors are very similar to those Wade found to be significantly related to high reading achievement.

A teacher who respects these imperatives of good instruction will structure his reading program in the following manner:

1. Begin the instructional program with a diagnosis of the specific reading needs of each child.
2. Design all lessons or learning experiences to meet the needs identified through diagnosis.
3. Define in precise terms what it is that children are to learn in each lesson.

4. Teach to accomplish these objectives, avoiding tasks that frustrate pupils and tasks that do not contribute to the accomplishment of the objectives, e.g., meaningless recall questions.
5. Following the lesson, evaluate to determine what *each* child knows, not just what the "answering" students know.
6. Plan the next lesson on the basis of this evaluation.

Compare this approach with the typical reading program:

1. Teachers have scores from a readiness test or achievement test or the report of a previous teacher which indicates the book the child was "in" last year. This information is used as the basis for grouping even though it furnishes very little insight into the specific reading needs of individual children.
2. The next story in the book, not the needs of children, dictates the objectives of the reading lesson.
3. Objectives are stated, if at all, in general terms that defy evaluation, e.g., "to introduce vowel sounds."
4. The questions in the teacher's guide are asked even though they may not contribute to pupil learning. Guszak found in his study that on the very first attempt, children gave acceptable responses to 90 percent of the literal comprehension questions. This suggests it may not be necessary or useful to spend time on this type of instructional activity for many children have already mastered this skill.
5. Evaluation of the lesson is accomplished through oral questioning. Because all children cannot respond to all questions and because the better students do most of the answering, it is virtually impossible for the teacher to discover what each child knows.
6. The next lesson is planned in accordance with the next story in the book, regardless of the findings of the previous evaluation.

A Guide for Observing Reading Instruction

A guide for observing reading instruction has been developed and used by this writer and his students to investigate the nature of reading group instruction. The instrument is designed for use by a team of two observers, but it can be used by a single observer or by a teacher who has tape recorded his lesson.

Specifically, the Guide will reveal the following things:

1. The portion of time spent in teacher talk
2. The portion of time spent in student talk
3. The number of interchanges between teacher and student
4. How much time is spent by each student talking or reading aloud
5. What types of teaching activities are included in the lesson
6. Approximate percentage of time devoted to each activity.

Here is how the Guide is used by an observer team. At five second intervals, Observer One indicates whether the teacher or a student is talking or reading or if there is silence. The observer mentally assigns a number to each student and records his number each time he verbalizes so the number of times a child responds or performs can be ascertained.

Using the following categories, Observer Two records at five second intervals the types of instructional activities that occur.

C = Comprehension development, which includes any activities intended to teach or test understanding of material read. This encompasses everything from recall of a name or simple fact to critical analysis of a selection.

R = Word recognition includes any activities intended to improve a student's skill in "unlocking" or recognizing words.

O = Oral reading by teacher or student. This symbol should be used only when there is an actual attempt to improve oral reading skill. Such instruction usually emphasizes reading for meaning, attention to punctuation, appropriate speed, enunciation, etc. When oral reading is used primarily for *evaluating* or *improving* word recognition, it should be marked "R" (word recognition). Such would probably be the case in the following types of situations: 1) when a child is asked to read to find a word that begins or ends with the same letter or sound as some other word, or 2) when the child is asked to read so the teacher can assess his ability to use word attack skills to recognize unknown words. If the primary purpose of the oral reading is to evaluate or improve comprehension, the symbol C (comprehension) should be used. When a teacher says, "Billy, read the first sentence on page 46 and tell us how Dick's goat got out of his pen," she is using oral reading to improve or check comprehension.

S = Silent reading by teacher or student. This symbol will typically be used when an entire group is engaged in silent reading. If a single child is asked to read for some word recognition or comprehension purpose, the symbol *R* or *C* should be used.

E = Enrichment activities—discussions carried on to establish background for the story to be read would be included here. Also, relating personal experiences by teacher or students. Additional information presented by teacher or pupils to supplement the story or lesson would be categorized as an enrichment activity.

L = Listening skills—any direct attempt to improve the listening skills of students would be included in this category. Caution: teacher admonitions such as "pay attention" and "listen carefully" do not qualify as direct instruction in listening skills.

Some interesting and useful insights into reading group instruction can be gleaned through the use of this instrument. A look at a representative lesson in the primary grades will serve to illustrate this claim.

One teacher taught a lesson which, according to her objectives, was to present several word recognition skills. The observational analysis showed that less than forty percent of the lesson was devoted to these skills, while an approximately equal portion of time was spent on comprehension skills. Enrichment and silent reading activities received a combined total of twenty percent of the instructional time. No attempt was made to teach listening skills.

This lesson was discouraging for several reasons. First, it reflects the tendency of many primary teachers to spend as much or more time on comprehension activities than is spent on word recognition. Certainly comprehension is a vital part of reading, but most children who have reading difficulties are deficient in word recognition skills, not comprehension. This suggests that more, not less, time should be spent teaching recognition skills. Among those who do have comprehension problems, there are only a relative few who need the recall and/or recognition type skills that constituted a major portion of the comprehension activities in this lesson.

For another reason this lesson gives cause for concern. The teacher apparently did not seriously intend that the lesson should accomplish the stated objectives, otherwise word recognition skills would have received a greater share of instructional time. Had the

pupils mastered the recognition skills early in the lesson, it would have been appropriate to either stop the lesson or go on to another skill. But this was not the case, for the recognition activities followed the comprehension activities.

The time spent on enrichment and silent reading is also perplexing. In the first place, both activities were closely related to the comprehension instruction which really increased the total percentage of time spent teaching comprehension. In addition is the consideration of how the silent reading was accomplished. First, the story was read paragraph by paragraph or page by page with questions being asked after each reading. Only after the story had been dissected in this manner did the children have the opportunity to read the story as a whole. What possible enjoyment or connected meaning can children derive from a story read in this manner?

Judging from this lesson, and from many others observed, listening is rarely taught as a part of reading instruction. In most instances there is very little direct listening instruction during the reading period. Hopefully, this skill is being taught at some other time during the day.

A check of student-teacher interactions revealed a fairly even division between teacher talk and student talk. There was a relatively high level of verbal interchanges, a factor associated with good achievement according to Harris. However, many of the student verbalisms were one-word responses to a teacher question, meaning that these discussions weren't really very lively.

Further analysis of the interactions made it even more evident that the discussion wasn't animated and stimulating on the part of the class as a whole. Of the eight students in the group, one child spoke or read twenty-six times while another child performed only once and two others performed just three times. Four children accounted for seventy percent of the student responses.

These findings on student participation are interesting from another standpoint. There was no written assignment following the reading lesson, so if the teacher evaluated the lesson, it had to be through the oral responses of the children. How could the teacher possibly know anything about those children who were unresponsive? And what about the child who recited twenty-six times? Did

she learn anything or was she just displaying knowledge and skill possessed before the lesson even began?

What often appears to be happening in reading instruction is that teachers are placing too much reliance on a basal reader or other structured instructional material. They base their lessons on the objectives and techniques offered in the teacher's guide. When the established program seems inadequate, they use supplemental materials, often another basal series, but taught in much the same way as the original program. This is not an incrimination of basal readers or other structured materials, they are useful tools. But they are only tools. There is no way in which a book or series taught just as it is printed, can meet the daily needs of even a single child, much less the needs of a reading group. It is imperative that teachers *adapt* materials to meet student needs.

It well may be that the principal difference between effective and ineffective teachers is that effective teachers teach *children* to read while ineffective teachers teach *materials* to children.

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Changing Teacher Behavior as a Means of Enhancing Intellectual Growth in Young Children

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IN THE UNITED STATES, a major portion of the primary school day is devoted to reading instruction. This is also true of the majority of classrooms throughout the world. However, the practices that are presently in use in many of these classrooms interfere with growth patterns on which the ability to read is dependent. In such cases reading problems are created by the school, the institution expressly assigned the task of teaching children to read. The damage incurred is not limited to the difficulty in reading the printed word, but includes the loss of zeal by children who have the potential to become outstanding readers.

The Hawaii state school system is presently directing its efforts to the changing of teacher behavior as a means of enhancing the intellectual growth patterns of young children, through an organized system which focuses upon the individual learner.

The Need for Change

Former United States Commissioner of Education James E. Allen, in an address to the National Association of State Boards of Education, entitled *The Right to Read—Target for the 70s,* challenged the schools. The statistics he presented showed the results of past efforts to teach people to read, and revealed the magnitude and social consequences of reading failures within the United States.

- One out of every four students, nationwide, has significant reading deficiencies.
- In large city school systems, up to half of the students read below expectation.

- There are more than three million illiterates in our adult population.
- About half of the unemployed youth, ages 16-21, are functionally illiterate.
- Three-quarters of the juvenile offenders in New York City are two or more years retarded in reading.
- In a recent U.S. Armed Forces program called Project 100,000, 68.2 percent of the young men fell below grade seven in reading and academic ability.

> The tragedy of these statistics is that they represent a barrier to success that for many young adults produces the misery of a life marked by poverty, unemployment, alienation, and in many cases, crime. . . . For the majority who do acquire the basic reading skills, there can also be a barrier which limits the fulfillment of their right to read. This barrier exists when the skill of reading is not accompanied by the desire to read (*1*).

Support for the situation pointed out by Allen can be found in sources other than within the political scene. Spache and Spache (*10*) contend that one child in three may be considered an underachiever. Professor Kiyoshi Makita, of the Neuropsychiatric Department of Keio University, Tokyo, investigated the reading standards of 10,000 Japanese children, and found that fewer than one percent had difficulty in reading. The extraordinary statistical discrepancies that show that there are ten times more disabled young readers in Western countries than in Japan, calls attention to the need for concern, investigation, and action (*8*).

The successful results in the teaching of reading, reported by open-structured infant schools in Great Britain, can serve as an inspiration to educators in the United States. Featherstone (*4*) asserts that in these schools, reading problems have been reduced to approximately one percent, and if these children were allowed to stay one more year, the problems would be virtually eliminated.

Some educational researchers (*10*) are asking why American schools have many more boys than girls needing remedial reading, as compared to a similar group of children in Germany, where reading is more of a problem for girls than for boys. It would be interesting

to have a study made of the factors which contribute to these comparative results.

Claims that a particular reading method provides a panacea—whether based upon a sight, phonics, or linguistic approach—are to be questioned. Also, publishing companies in their enthusiasm to promote their product may foster the concept that there is an easy remedy to the complex process of reading. Sheldon, Stinson, and Peebles (*7*) compared three approaches to reading instruction and showed that there was no significant difference in the three programs. Harris and Serwer (*5*) concluded that success in reading was most dependent upon the teacher's ability to teach reading. Durrell (*3*) concluded, from his investigation of reading achievement among first grade children, that high achievement as due to effective use of learning time rather than the use of a particular reading series.

These studies indicate that improvement in reading achievement requires a change in teacher behavior. According to the convictions of this writer, the closed, overstructured, teacher-controlled learning environment should yield to a more open-structured learning environment which allows the child greater control over his learning, and an opportunity to use learning time more effectively. Let us not confuse an open-structured learning environment with "progressive education." Many teachers misinterpreted Dewey's philosophy and believed that a child would automatically move toward more sophisticated learnings. Brownell (*2*) found this not to be the case as early as 1941, when he discovered that children will continue to perseverate behavior in arithmetic, unless moved to more mature levels of understanding.

Before a child enters school, he is free to explore and learn from his total environment. During the five or six years of learning in a preschool open-structured situation, the majority of children have mastered the linguistic structure of our language and enter school with a speaking vocabulary between 2400 and 17,000 words (*9*). An interesting criticism of our overstructured schools can be epitomized with the phrase from John Holt's book, *Why Children Fail*: "If we taught children to speak, they would never learn" (*6*). This extravagant statement may serve as a stimulus to reevaluate the closed environment which has become a bottleneck to learning.

Teachers need to break the three group intellectual caste system and the too rigid adherence to some one system of reading. Often children are forced into reading activities which are boring, too difficult, and have little relevance to real life. Those who have read *To Kill a Mockingbird* may recall Scout's encounters with Miss Caroline, who refused to accept Scout's ability to read and write because it interfered with her teaching. At the other extreme are those children who do not have necessary prerequisites for reading a primer but are forced to meet failure daily because the teacher has neither the philosophical base nor the management skills for taking a child from "where he is" to a new level of achievement. There does not appear to be one "correct" sequence of reading skills. For example, some readers, based upon a phonics approach, place the teaching of vowels before teaching consonants; linguistic readers differ in their sequence of word patterns; and other basal readers differ in the size and type of sight vocabulary that is to be initially developed before introducing certain word recognition skills. The teacher needs to be flexible in making proper diagnoses and prescriptions and in fitting her methods and materials to the learning style, vocabulary level, and pace at which the child can assimilate new concepts and skills.

New Teacher Behaviors

Intellectually, teachers agree that individual differences exist; however, at the operational level, these same teachers still teach *groups* of children. In Hawaii, new models use an open-structured primary classroom setting in which the pupils make learning decisions, thus blending a new humanism with an intellectual environment that will cultivate positive self-concepts along with basic academic learnings. The instruction of specific facts and skills have been relegated to software and machines. For instance, learning time is increased by children drilling each other with flashcards, using language masters for drill purposes or appropriate programed materials, thus alleviating waiting time for children which occurs when a teacher attempts to drill and test children within a group. Such activity requires a new set of behaviors for both teacher and children.

The new learning environment delegates routine classroom business to the pupil and it contains many learning centers in which the child selects and plans his learning activities for a part of the day. The learning atmosphere is one of freedom for the child to plan, to make decisions, accept responsibility and evaluate his behavior. Once the teacher has trained the children to work independently, and both are freed from an over-controlled environment, the teacher can perform in a more effective manner. More time is provided for conferring with children, helping them to evaluate their learning behavior, developing new concepts and skills with small groups of children, discussing creative ideas, and furnishing opportunities to use their newly acquired knowledge in real life situations.

Teacher Decision-Making

In order to provide a successful open-structured program, it is necessary to organize materials and activities so that the student and teacher have clear-cut objectives which when met are observable to the pupils and the teacher. An attempt will now be made to describe an open-structured program which incorporates activities that many superior teachers have employed intuitively, but are now identified and combined with strategies which personalize learning.

Teachers who are philosophically sympathetic toward an open-structured program which focuses on the child, but are concerned with implementation, need to develop a plan which brings philosophy and operation together. Program planning commences with teacher decisions in the areas of curriculum, instruction and management. Decisions regarding curriculum necessitate preparing a priority of objectives for each child. This means that the teacher must know what objectives comprise the content area, what are the necessary work study skills a child must have in order to handle instructional tasks that will meet the content objectives, and what activities will build accompanying positive attitudes for learning. Once the teacher has arrived at appropriate curriculum decisions, a judgment is made regarding the best method of instruction: large group, small group, peer group teaching, independent study, or a composite of some or all.

Management fuses planning with operation by providing appropriate time allotments, materials, equipment, and traffic patterns. It directs the role of the teacher, which may be that of information-giver, through the means of direct teaching, or as a monitor, assessing behavior of pupils as they work independently or in groups.

Application of a Theoretical Framework

From this theoretical framework, application to a primary classroom will be described in terms of objectives and procedures.

A teacher might choose as the objective for initiating the reading process the following: Each child will recognize his first name and use this skill in taking his own daily attendance. The procedure will begin with teacher assessment through working with random groups of children, checking their ability to recognize their first name. Random grouping is important because it will minimize the teacher's preset ideas about particular children and it provides an opportunity for children to be together on a heterogeneous basis. Once the teacher has assessed the pupils, decisions are made regarding instructional strategy for each child. Children who know both their first and last names may work independently in a learning center which develops additional vocabulary such as color or number words. Children who know their first name but not their last name may form an instructional group in which the teacher provides appropriate instruction and practice materials. Students who have difficulty or cannot recognize their name from another instructional group in which direct teaching of their first name is carried out.

Management of this learning environment may require the following: attendance charts in which those children who know their names, find their name from a stack of name cards and place it in the proper chart pocket and additional attendance charts with only a few names listed, on which children place a ticket to show that they are present. Thus, by providing appropriate materials, each child has a purpose for learning to read because he is responsible for taking his attendance, and can succeed at this task. Teacher knowledge of the reading continuum makes it possible to provide materials in learning centers which develop listening skills, writing skills,

phonic skills, and low organization skills such as patterning, as well as an opportunity for those children who are reading to pursue books of interest in a library center.

Larger and more flexible time allotments are used, reducing the pressures produced by rigid daily time periods. Scheduling consists of setting the length of time a teacher will work on an objective, possibly two weeks in this particular example, and the amount of time spent daily in which children work individually, assuming in this instance two hours of uninterrupted time. With this type of individualized instructional management, the teacher works with small instructional groups, members of which remain in the group only as long as teacher supervision is necessary. Once the child understands the skill, additional practice can be pursued in a learning center, rather than working directly with the teacher. The large block of time and the training of children to work independently, make it possible for the teacher to observe children while they individually pursue activities which develop beginning reading skills.

The following example will illustrate how all children can be exposed to important educational objectives, rather than limiting these objectives only to those who are academically talented. In this instance, the objective is to be that the child will be able to state or write the "main idea" from a set of materials presented to him. The procedure used would be to group children homogeneously according to the child's ability "to use reading material." Those children who read well and can use the skill of finding the "main idea" are provided opportunities to apply this skill, through independent study. A possible special project might be that of converting a story into a play. Students who have the necessary word recognition skills but have not developed the concept of "main idea" form an instructional group in which a basal reader may be utilized for perfecting this skill. The children whose word recognition, rhythm and phrasing are weak would be taught this skill through pictorial materials, alleviating the dependence upon word recognition. At the end of a predetermined time period, the teacher makes notations regarding those children who still need additional help before they will have met the objective. When the teacher returns to this skill, she may find that the prior efforts have established readiness and

that some of these children have obtained the skill of "main idea" on their own.

During the allotted period devoted to the "main idea" objective, the teacher also works with groups of children with a range of reading abilities providing an opportunity to focus on the application of this skill. Friendship, thematic, or information-giving groups furnish an opportunity for the less mature to see and work with more mature children who become positive models. It also provides an audience for the more capable student to share his knowledge.

In summary, by taking the teacher out of the apex and freeing her to interact with individual children; providing greater flexibility in time schedules and adapting materials to fit the child; helping teachers become better decision-makers in the areas of curriculum, instruction, and management—as a result of doing these things, the learning-teaching process will be not only relevant but enjoyable to both teacher and child. The school environment needs to provide for self-directedness through child planning and decision making, encouraging the building of a positive self-concept by creating an atmosphere which is free of fear and failure, developing good interpersonal relationships by making time available for the teacher and child to work together, and giving children a chance to associate with all of their peers.

Life is a mosaic, and our job as educators is to help children obtain the tools that fit the pieces together into a life style that will bring meaningfulness, success, and happiness.

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Factors Contributing to the Success of Primary Reading Teachers

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THEORIES and practices related to instructional effectiveness in teaching primary reading have been recommended over the years. Continued innovation has been suggested as a positive approach. Consequently, various teaching methods, materials and organizational procedures were and are still being proposed and implemented.

Almost 100 years ago, B. A. Hathaway Company published a book entitled, "Theory and Practice of Teaching—1001 Questions and Answers" (*1*). Included among the 1001 questions and answers are these classic examples related to innovation over the years:

> . . . What is meant by the new education? . . . The new cannot be accurately defined in a few words. It embraces the results of the best thoughts of modern educators. It means new methods as well as new studies. It aims to find nature's method; it would teach things before names; it would direct and not repress the child's natural activity, and it recognizes the importance of doing and thinking in all learning. . . .
> . . . Name the principal methods of teaching beginners to read. . . . What may be said of all these methods? . . . The alphabet method, word method, phonic method, a combination of these methods. . . . By any of them children may be taught to read; a good teacher may be successful with any of them, and a poor teacher may fail with the best method.

It seems most ironic that portions of these statements remain as reasonable guides for developing an effective primary reading program in the nineteen seventies. Underlying each of these sampled questions and answers are facets vital to pupils' beginning reading successes:

1. that appropriately innovative instructional programs for beginning readers should include assessments of each child's natural learning inclinations, needs, and potentials;
2. that teachers are the key personnel involved in ensuring pupil successes in beginning reading programs;
3. that appropriate interactions between the teacher and beginning reader are essential.

These facets and elements related to them that may preclude or support effective primary reading instruction are subsequently explored in this paper.

The Beginning Reader

The beginning years in learning to read are a critical base that often affect a child's further successes in school. Each child, prior to and during his school years, is influenced by unique physiological, psychological, cultural, and economic influences. Interactions between and among such influences contribute to his individualism as a beginning learner. More specifically, some of the following questions and their answers may determine how we define his effectiveness as a primary reader:

1. What kinds of reading behaviors might appropriately be elicited from each child?
2. What tools or techniques ought to be employed to assess each child's reading needs, potentials, and learning modes?
3. When should or does an individual learner become involved in the complex combination of processes labeled globally as reading behavior?

Over the years, many specialists in the area of reading instruction have vested considerable amounts of time and effort to isolate behaviors pupils should accomplish in becoming "effective" readers. Long listings of word recognition competencies, comprehension competencies, and desirable oral reading behaviors as well as others have been carefully prepared and recommended as globally desirable behaviors for all readers. Yet, without any degree of attention to the

physiological, psychological, cultural, and economic uniqueness of each reader such sequenced listings and their global applications appear inappropriate.

At present, realistic projections of reading behaviors, uniquely in accord with pupils' differences, are nonexistent. As a prime example, most children are instructed in the application of numerous generalizations related to the decoding of words on the printed page. Yet, teachers have no conclusive research evidence to support the worth of such efforts with individual children over a period of time. It would seem more reasonable and less time consuming for individual children to be directed toward the acquisition of those reading behaviors in accord with individual learning modes, potentials, and projected needs. More research in the seventies ought to focus on the individual child as a reading-learner. An exploration of procedures for appropriately designing projections of individualized reading behaviors to be elicited per child is critical.

As challenging as the establishment of an individualized expected behavioral reading grid is the task of selecting and preparing related, valid, and reliable evaluative instruments and techniques. As one surveys published standardized instruments for pupil evaluation or the published achievement criterion type instruments, he finds few to none that yield information about pupils' learning modes and probable potentials in reading.

For example, there is no standardized instrument that will guide a teacher in reliably and validly determining which children might most effectively learn to read through Stimulus-Response-Associationists' procedures versus the gestaltists' concepts regarding pupil independent discovery techniques. Yet, such instruments are needed. There is no standardized instrument that validly or reliably isolates each individual learner's probable degree of potential in accomplishing specific reading behaviors. Yet, such instruments are needed. There are published instruments that may be employed to survey or diagnose specific or global reading behaviors at a time along the child's learning continuum. And, teachers have become increasingly creative in their designs of informal devices and techniques. These instruments can yield some cues to reading successes or failures as pupils experiment with one learning mode versus another, as they

attempt to accomplish certain reading behaviors, and as they perform during diagnostic or survey oriented learning demonstration tasks. Without doubt, therefore, another avenue of greatly needed research involves the isolation of instruments and techniques that will improve evaluation of pupils in reading.

Determining individualized reading behaviors appropriately and employing valid, reliable means of evaluation are closely related to decisions about when a child should become initially and subsequently involved with the specific aspects of learning to read. The prospective primary reader possesses a level of communication facility that reflects his physiological, psychological, cultural, and economic influences. He has had experiences that involve perceiving, listening, non-vocal signaling, speaking, and writing. Such experiences lend to a functioning base as he becomes initially involved with or ready for reading. The child's listening, speaking, and creative writing dictation vocabularies should become the familiar content in print to be decoded during reading.

Observations of children have led to the generalization that specified levels of language behaviors appear at different times in different children. There is no conclusive evidence isolating the optimal time a particular language or reading behavior ought to be elicited. A primary reader should, therefore, not be constrained by rigidly sequenced pacing procedures.

The Primary Reading Teacher

Most primary reading teachers express the desire and exhibit a concerted effort toward eliciting the reading successes of their pupils. From the onset of initial experiences, preparatory to teaching reading and during the teaching years, every opportunity to ensure their successes with children ought to be provided. To enhance their probable successes, answers to the following questions may be of significance:

1. What constitutes an effective preservice and inservice reading teacher preparation program?
2. How can paraprofessionals and others aid the primary teacher in her reading instructional role?

3. To what degree do various administrative organizational structures and/or class size affect efficiency in teaching reading?

For some time, the need for improvement of the preservice educational experiences of prospective reading teachers has been verbalized. The kinds and qualities of undergraduate experiences preparatory for teaching primary children have been in many instances questionable. Too many undergraduates in institutions of higher education have been exposed to programs that are inflexible in determining the needs and potentials of prospective primary reading teachers, that are inflexible in providing needed instructional pacing plans unique to individual preservice teachers, that lend to irrelevant or mediocre practical experiences with children, or that are directed by college and university personnel who have had limited past and/or current experiences in effectively teaching primary reading themselves.

At present, efforts are being directed nationally for improving elementary teacher education. Ten centers in various higher educational institutions across the country have been federally funded for the study and design of improved prototypic teacher education programs. Some centers involved, for example, have undertaken the task of individualizing preservice educational programs for prospective teachers. Hopefully, such endeavors will yield valuable suggestions and models.

It is important that we diagnose the needs and isolate probable potentials of prospective primary reading teachers. Subsequently, individualized preservice educational programs for them should be devised. Models of teachers' behaviors should reflect quality to preservice observers. Opportunities to observe and evaluate their own teaching behaviors via videotaped replays should be made available. And, personnel directing the experiences of preservice teachers should be able to exhibit personal successes in teaching primary reading to primary children.

During their years in the service of public education, many elementary teachers have felt and expressed inadequacies in aptly meeting pupils' reading needs. Continued educational experiences

for primary reading teachers are obviously needed during their years inservice. Such desirable ongoing education experiences may include:

1. learning more about the reading processes, about assessment of children's individual needs, and about techniques and materials to be employed in individualization of instruction;
2. observing skilled primary reading teacher at work with children and sharing successful teaching experiences;
3. realizing the relationships between reading and instruction in the other communication arts;
4. learning more about the sciences of linguistics, phonetics, semantics, and their possible application in teaching reading;
5. getting acquainted with literature for children—ways pupils may effectively consume as well as produce quality literature;
6. realizing their teaching responsibilities as pupils pursue reading for information, personal therapy, or pleasure.

These and other experiences can be meaningful when consultants, supervisors, and specialists are invited to the schools to aid teachers in their instructional tasks.

Individualizing instruction in reading for primary pupils is time consuming. School systems have attempted several procedures to aid teachers. In numerous school systems, paraprofessional personnel is employed to follow the instructional prescriptions devised by reading teachers. Other assisting personnel may include master teachers who aid in evaluation of pupils, or resource teachers who aid classroom teachers in the acquisition of related instructional materials. Clerks who can file and process data related to daily pupil achievements or who prepare teacher prescribed creative work material for pupils can also be valuable. In some schools, high school students who exhibit interests in working with elementary pupils are paid a small fee to help children as they pursue the instructional prescriptions of their reading teachers. Each of these procedures has added to the conservation of teachers' time and energies.

Finally, attempts to affect teaching success positively have been incorporated within schools' administrative organizational structures. Team teaching, nongrading, platooning, departmentalizing, dual progress planning, and other procedures are attempts to facilitate

teaching successes. Each of these attempts include varied conceptual frameworks and have led to variable increases in the successes of primary teachers who are involved with individualization of instruction.

Interactions Between Primary Teachers and Primary Age Readers

Children at primary age levels generally exhibit strong desires to interact with and be individually accepted by their teachers. They seek generally to please teachers who recognize them, show concern for them, and reward them for their accomplishments. A mere smile or gesture of approval may sufficiently ensure added efforts by primary age readers as they seek successes in learning.

As teachers and youngsters interact during the processes of individualized instruction in reading, the following questions may be of significance:

1. To what degree and how does the term "prescriptive instruction" imply the need for pupil-teacher interaction?
2. Can teachers be assured that pupils will appropriately respond to varied individualized instructional prescriptions during primary reading years?
3. What are some sources of funds for implementing a realistic individualized reading program?

In recent years, the term, "prescriptive instruction," has been variably defined. Degrees of pupil-teacher interaction should be in realistic accord with the child's need for such contacts and in realistic accord with the teacher's time and psychological energies to do so. Some pupils desire and feel comfortable when independently pursuing learning tasks in reading with their teachers as supervisors of their successes. Other primary age readers need directed, continuous contacts with their teachers if successes in reading are to result. "Prescriptive instruction," nevertheless, does imply that teachers know a great deal about how pupils can best learn what they ought to be learning, as they progress toward their individualized goals—maturity in reading.

One can also infer that the term "prescriptive instruction" can

best be facilitated by teachers who are acquainted with and can employ various instructional approaches in teaching children in primary grades. Teachers may elect from a number of teaching approaches, currently labeled as basal reading approaches, phonetic approaches, linguistic approaches, individualized reading approaches, and language experience approaches. Each approach is uniquely based on a different set of philosophies underlying teaching and learning in primary reading. Unfortunately, at present, there is no scientific procedure teachers can employ to determine through which approach or approaches the most appropriate reading behaviors can be elicited from an individual child. In addition, at present we have no scientific evidence to predict for an individual teacher, the approach or approaches by which she can teach most successfully.

Prescriptive instruction demands that teachers be acquainted with the vast numbers of books, audiovisual devices, kits, programed materials, workbooks, and computerized devices that have been patented, published, and made available across the country. Two or three major problems emerge as teachers realize the overflow of reading instructional materials. Teachers need time to examine and evaluate materials. They are also confronted with decisions about materials that facilitate a pupil's learning, a teacher's teaching successes, and the probable successes of paraprofessionals.

Teachers have no guarantee that the individualized instructional prescriptions they prepare will ensure an individual pupil's successes in primary reading. At least they have intelligently attempted to speculate, plan for, and anticipate success. Through creative prescriptive preparation it is quite likely that teachers will personally conceptualize new approaches and prepare more appropriate materials than those currently identified for individual primary children.

Individualizing primary reading instruction is a costly educational necessity. School systems, that are financially able, have set aside significant amounts for such endeavors. The necessary time allotments of teachers and teachers' aides, instructional materials, and inservice education are expensive. Federal funds, for education at this time, reflect a significant cutback but are still available to educational research and development centers that service public education, through the Office of Economic Opportunity, and through

other National Educational Service Acts. Private industries and foundations have offered financial support to a number of public schools. But, the reality of available finances for individualizing instruction in reading does affect the kind and extensiveness of teacher-pupil interaction.

Summary

Facets and subfacets that contribute to or limit the effectiveness of a primary reading program are multitudinous. In this paper, major factors that affect the beginning reader's successes, the primary reading teacher's successes, and the successful interaction between teachers and pupils have been discussed. The solutions to questions and problems posed are in the forefront of quests toward added efficiency in teaching primary reading.

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Preparation, Induction, and Follow Up of Beginning Teachers

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THE BEGINNING TEACHER at either elementary or secondary level enters the profession woefully lacking in the knowledge and skills necessary to ensure success in reading instruction. Evidences of teacher training deficiencies have been cited in the literature for a number of years. In 1961, Austin (*2*) reported in the results of the Harvard-Carnegie Reading Study that only seven of the fifty states specifically required a course in the teaching of reading for the certification of elementary teachers. Although 97 percent of the colleges included in the study required elementary education majors to take some instruction in basic reading, this instruction was often embedded in a language arts course. In 60 percent of such courses, the actual time devoted to reading ranged from four-and-one half to eleven-and-one half *clock hours*, with 30 percent of these courses giving reading even less time.

In 1963, Conant (*3*) found that by no means all of the colleges included in his two-year study of teacher preparation for elementary and secondary schools required a specific course in the teaching of reading. Of thirty-five institutions visited, only nineteen required such a course, and where the course was required, the credit given ranged from two to four semester hours. This, he commented, was barely adequate for grades four, five, and six and entirely inadequate for teachers in kindergarten and all grades one through three. He recommended that a minimum of three semester hours in teaching reading be required preparation for all elementary school teachers and twice this amount be prerequisite for teachers of kindergarten and the lower three grades.

In 1968, Kinder (*8*) reported in a study of certification requirements for reading personnel for fifty states, the District of Columbia, and Puerto Rico that ". . . most states did not require special training for persons who taught or supervised reading classes or pro-

grams." Only twenty-five of the fifty-two agencies polled required certification for reading specialists.

These data, although shocking, are no revelation to teacher training institutions. The practices relating to training of reading teachers are well known to the staffs in each institution. Courses of study and related experiences offered in the various institutions, with few exceptions, are remarkably similar. Not many programs have been materially strengthened since the Austin, Conant, or Kinder reports. Few educators would disagree with the premise that today's readers, living in a world vastly different from the past, need the ability to read with understanding, insight, and critical analysis; few would maintain that an instructional program adequate for the past would suffice today, yet local school systems and training institutions have made no radical changes in their training programs.

Graham (5) states that the beginning teacher has not been effectively prepared to cope with the educational problems of students coming from low income homes, or homes with a different cultural pattern from the one usually labeled "American." Graham says this is evidenced by the fact that only 19 percent of all prospective teachers graduating in 1966 were willing to teach in large city school systems or rural areas.

The impetus given to improvement in reading by former U.S. Commissioner of Education, James E. Allen, Jr., through the "Right to Read" program is encouraging. It may provide the needed thrust to bring unquestioned acceptance of the fact that just as a knowledge of one's teaching field in subject areas such as history, mathematics, literature, or science is a prerequisite to teaching success, so an extensive knowledge of the reading process, training in diagnosis of individual learning difficulties, courses in basic reading instruction for both elementary and secondary teachers, and ample experience with children, both advantaged and disadvantaged, is a prerequisite to successful reading instruction.

Problems of the Beginning Reading Teacher

New teachers commonly confront certain kinds of problems with which most experienced teachers have learned to cope. One of

the early studies devoted specifically to discovering why teachers have problems in reading instruction was reported by Hester (*6*) in 1953. She concluded that 1) more than three-fourths of the teachers felt a need for more help in handling classroom situations so that every child could learn to read to the best of his ability; 2) interest in remedial reading, as such, was decreasing; 3) interest in reading readiness was extending to reading instruction at every level; 4) a relative unconcern for teaching reading in the content subjects was apparent; and 5) pupil evaluation held a position of minor importance among the classroom problems in reading instruction.

Another study (*10*) which sought to determine the kinds of problems encountered in the teaching of reading and the types of inservice training provided was conducted by members of the Western Michigan University Chapter of the International Reading Association. Two inventories were prepared, one for school administrators and one for classroom teachers in the same school system.

Perhaps the most interesting fact disclosed by the survey was in regard to teacher preparation and adequacy in reading instruction. Forty-two percent of the responses of administrators suggested that this problem was directly related to the teaching of reading while less than two percent of the responses of the teachers regarded teacher preparation and adequacy of instruction as a significant factor. Both administrators and teachers were concerned with adequacy of instruction. Yet, each perceived the problem from a different point of view: administrators appeared to relate the problem to inadequate teacher preparation, while teachers related the problem to children and to the development of reading skills.

In 1958, Fish (*4*) reported from a study of beginning teachers in Wisconsin that problems which teachers gave the highest rating of difficulty were: 1) providing profitable seatwork for retarded readers, 2) providing challenging seatwork for superior readers, 3) teaching reading to the physically handicapped, and 4) teaching reading to the mentally retarded.

In 1964, Adams (*1*) reported a study conducted to determine the instructional needs of elementary teachers. The results of the study indicated that elementary teachers, to increase their effectiveness in reading instruction, need better understanding of 1) the na-

ture of the reading program, 2) readiness and motivation, 3) individualization, 4) teaching of reading skills, 5) materials and resources, and 6) evaluation.

In 1969, the writer (*9*) reported a study of beginning teachers in Idaho in which the eleven instructional problems most frequently rated extremely difficult by beginning teachers could be placed in three general categories:

1. Organizing the class for instruction
   a) Scheduling individual conferences
   b) Scheduling reading groups
   c) Individualizing instruction
2. Teaching the study skills
   a) Distinguishing relevant from irrevelant information
   b) Taking notes
   c) Organizing information in planning a written report
   d) Outlining
3. Providing for the child with learning disabilities
   a) Motivating slow pupils
   b) Recognizing symptoms of neurological impairment as possible causative factors in reading disability
   c) Constructing teacher-made tests of reading ability
   d) Making use of instructional materials to provide for the disabled reader

Any synthesis of the results of various studies designed to discover problems in reading instruction encountered by beginning teachers is extremely difficult, not only because of the diverse nature of the various studies, but also because of the variations in thoroughness with which the studies were carried out. However, over a long period the following "problems" have been repeatedly mentioned in research as most frequent and most serious both for beginning and experienced teachers:

1. Difficulties in providing for individual differences
2. Difficulties in classroom control
3. Difficulties of motivation
4. Difficulties in diagnosing or correcting pupil deficiencies
5. Difficulties in testing and evaluation

6. Difficulties in directing study
7. Difficulties in the use of materials and equipment

Local school administrators, recognizing that beginning teachers enter the classroom with minimal preparation for reading instruction and anticipating the kinds of problems which confront the novice, should provide a comprehensive program for inducting new teachers.

Induction of New Teachers into the Profession

Teacher training institutions, however excellent, will not or can not prepare teachers for the full and immediate responsibilities they face on entering a classroom for the first time in September. A concerted and continued effort of the total educational community, including the teacher training institution, administrators, supervisors, cooperating teachers, guidance personnel, and professional organizations, must be employed in inducting new teachers into the profession.

Phase I: The Time Before School Starts

Phase I of the induction should begin the moment a new teacher is hired and should include: 1) an explanation of the assignment; 2) an introduction to administrative personnel, curriculum specialists, and ancillary personnel with whom the reading teacher will be expected to work; 3) a tour of the school building; 4) a discussion of the nature of the community including perhaps a tour of the community with a visit to some of the homes and some of the community agencies with which the reading teacher needs to be familiar; 5) a review of texts and syllabi to be used; and 6) a tour of the library or media center including introduction to available resource materials, equipment, and professional books related to the assignment.

Obviously, the principal, because of the multiplicity of his responsibilities and his educational background, has neither the time nor the special knowledge necessary to provide the assistance needed. However, he usually has on his staff several highly qualified, experienced classroom teachers who, if given the time, the authority, and

the guidance of a district reading specialist, could provide the support and guidance so urgently needed by the new reading teacher.

Hunt (7) reported highly qualified experienced classroom teachers were effectively employed in the NASSP project with groups of from three to eight beginning teachers. These cooperating teachers, new specialists for the school staff, were given at least one period of released time daily from their own classes in order to become teachers of beginning teachers.

Phase II, The Opening of School: A Time for Practical Assistance and Advice

The beginning teacher needs at the opening of school not speeches on theory and philosophy, but practical, concrete down-to-earth assistance that will help him to conduct his classes with a minimum of conflict or disruption. Cooperating teachers who have, if possible, been guided and assisted by a district reading specialist and who have worked with beginners throughout Phase I should continue to meet daily with small groups of beginners in a program planned to prevent problems whenever possible, but also to provide time for informal sharing and discussions.

Included in the structured strand of the program will be sessions designed to: 1) explain school policies, schedules, and special duties; 2) assist with attendance procedures and record keeping; 3) provide guidance in the use of supplies and special equipment; 4) give instruction in informal diagnostic procedures; 5) offer assistance in setting up the reading program and individualizing instruction; and 6) make known the roles of principal, counselor, speech therapist, psychologist, nurse, parent, and professional organization as they relate to the reading program.

The informal strand will include: 1) frequent brief visits by the cooperating teachers to individual classrooms to reassure the new teacher if he is doing well or to provide suggestions for improvement if he is having trouble; conferences with individuals to review plans or to assist in improving daily and long term plans; and small group sessions in which beginners discuss their concerns, e.g., difficulties with lesson planning, motivation, assessment of reading ability, or classroom discipline.

Swanson (*11*) indicated that beginners in the project appeared to benefit more from group situations than from individual counseling. These sessions in which the new teachers shared their problems seemed to provide emotional support and a feeling of group identity. Knowing that others were experiencing similar difficulties made it easier for the troubled beginner to bring his concerns into the open and to be receptive to the help provided by the supportive, nonthreatening cooperating teacher.

Phase III, The First Semester: A Continuing Emphasis on Practical, Daily Concerns

Regular group meetings which emphasize the practical arts of teaching should continue throughout the first semester. Hunt (*7*) observed that experiences in the NASSP Project on Induction of Beginning Teachers indicated that almost everything planned for the beginning teacher during the first semester should relate directly to what is going on in his classroom.

Groups and individuals, led by the cooperating teachers under the direction of the district reading specialist, should continue to work toward improving lesson planning, classroom organization, and methods of instruction in terms of individual student needs.

In addition to continuing as necessary those activities initiated in Phase II, the program should be broadened to include: 1) observation of experienced teachers; 2) demonstrations of teaching techniques, preferably dealing with specific problems that have been identified in the teacher's own classroom; 3) discussion of particular problems with specialists, including the district reading specialist, the guidance counselor, the speech and hearing therapist, the psychologist, and consultants from teacher training institutions; and 4) training in the use of audiovisual materials.

Phase IV, The Second Semester: A Gradual Shift from Practical Daily Concerns to a More Theoretical Approach

Beginning in January, the emphasis should gradually shift from daily classroom concerns to a longer range, more theoretical approach. During this period the program provided should help the beginner articulate and analyze his philosophy of education, understand his students, and evaluate his performance in the classroom.

Daily sessions with the cooperating teacher may be reduced to weekly sessions, thus providing time for seminars with other educational specialists—the counselor, the psychologist, the reading specialist, and consultants from teacher training institutions or the state department of education.

Activities scheduled should include: 1) demonstrations of a variety of teaching strategies; 2) evaluation of teaching performance through the use of video and sound tape; 3) discussion of successful motivational techniques; 4) discussion of teaching resources and methods; 5) discussion of individual differences in growth and development; 6) sessions devoted to learning theory; and 7) a supervised case study of a problem.

If this sounds like a comprehensive continuation of teacher training, it is. Should not the induction of reading teachers into education be as carefully defined and executed as induction into law or medicine, for does not the reading teacher have as great an impact upon the lives of youth as the lawyer or the doctor?

The Role of the Teacher-Training Institution

The quality of the undergraduate program in teacher education determines to a great extent, the effectiveness of its graduates to teach reading. Since research has repeatedly shown the need to improve the preservice preparation in reading instruction at the undergraduate level, a vigorous effort should be exerted to upgrade the program by providing more meaningful experiences with children earlier in the game. These contacts should begin in the freshman or sophomore year and include experiences in tutoring, in serving as teacher's aide, and in classroom observation.

Wilhelms (*12*) suggests an ongoing seminar which runs the whole length of the professional program as one of two parallel strands of curriculum, one of experience and one of theory wound together all the way like the double helix of a strand of DNA.

In addition, a follow-up program for graduates should be established with a view toward determining to what extent their preparation has been adequate and what weaknesses, if any, exist in their training.

Throughout the first year induction program and probationary period, the training institutions should continue in a cooperative endeavor with the local school system—the local faculty and the college faculty have a joint responsibility for the successful induction of beginners into the profession.

The Role of The Local School Administrators

The superintendent and principals have the major responsibility for initiating and implementing any induction program. They must be willing to provide released time for cooperating teachers and beginners, to set aside days for workshops, to allow teachers to visit neighboring classrooms and schools and, in general, to foster an aura of learning in the school community.

According to Swanson (*11*), two factors stand out as being most influential in the successful induction of beginning teachers: a reduced teaching load, and the presence of a qualified cooperating teacher. Beginning teachers in the NASSP Project for the Induction of Beginning Teachers reported that time to plan, to seek advice, and to find and use good instructional materials were paramount.

The Role of Professional Organizations

Professional organizations should become increasingly involved in the successful induction of new teachers to the ranks. The beginner needs the emotional security and support provided by the knowledge that he is not alone with his problems but is welcomed as a full-fledged member of the profession and has at his disposal all the resources of the experts. Professional materials, books, journals, and reprints should be available in the teachers' lounge or in a rack beside the coffee pot in the staff room. Perhaps, as further encouragement to beginners, local IRA councils could subsidize the professional membership of beginners in order to ensure that journals are in their hands.

Monthly seminars, geared to the needs of beginners, could provide the opportunity for master teachers in local councils to serve as leaders. To strengthen the reading instruction program, including the undergraduate preservice preparation and the preparation of reading specialists who lead beginners, reading organizations should

become more actively involved in initiating and helping to develop state reading certification programs, particularly in states that currently have none.

The Role of the State Department of Education

State educational agencies play a dominant role in the induction of the beginning reading teacher through their certification requirements.

In 1968, according to Kinder (*8*), over half of the states in the United States, through their state certification departments, made it possible for someone to work as a school reading specialist with little or no training or experience in the teaching of reading. Most states required no special training or experience for persons who taught special reading groups or for persons who supervised a school reading program.

State departments of education are responsible, not only for ensuring that adequate standards of proficiency for reading instruction are established in undergraduate education programs, but also for making certain that only persons with sufficient proficiency to provide effective reading instruction are given the title of reading teacher, reading consultant, reading specialist, reading supervisor, reading coordinator, or reading director.

State educational agencies should, through their reading consultants, provide leadership for planning and implementing local induction programs.

Conclusion

Helping the new reading teacher to move quickly and comfortably from novice to professional educator is a major all profession responsibility—a problem to be attacked with vigor by the total educational community, including the teacher training institution, school administrators, professional organizations, and state educational agencies. If excellence is the goal and change is the only constant, then education for the reading instructor can never be considered complete.

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A Model for Preservice Education of Elementary Reading Teachers

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SINCE former Commissioner James E. Allen proclaimed his now famous "right to read" phrase, reading people have been eager to join forces and capitalize on the interest generated in the field of reading. The idealism that surrounds the right to read words is commendable. Scholars and researchers everywhere are planning strategies to make the decade of the seventies a period of fruitful gains for reading instruction.

Concern cannot help but focus on the current thrust. Much effort appears to be directed toward graduate level and inservice programs. Perhaps more attention should be directed toward preservice education.

Each year about 100,000 beginning teachers staff classrooms across the nation. Reading instruction for many of our children is directed by first year teachers who have had one or two survey courses in reading methods at the undergraduate level. The excellent, experienced teachers of reading are very rapidly promoted out of the classroom. Compounding the problem are the professors of education who have lost their contacts with children. Frequently the most capable reading teachers are in the remedial reading rooms and clinics working with disabled readers. It is obvious that fewer clinicians would be needed if developmental reading programs were successful.

Designing and implementing an undergraduate program that guarantees even minimal success in teaching reading is not easy. College students' decisions to enter a program of teacher preparation are based on a variety of reasons. The degree of commitment by students is affected by maturity and other personal factors. The amount of time available for adequate teacher preparation is limited.

Institutional change is painfully slow. The planning necessary for gaining cooperation from public and independent schools is time consuming. Nevertheless, many of the teachers responsible for reading instruction in the elementary schools are the products of these restrictive conditions.

Accepting the challenge for designing a model of preservice education for teachers of reading at the elementary level would suggest the following elements:

1. *Choice*—Learning to choose responsibly from an expanding range of options is developed through many opportunities. Opportunities should be available to the young child, to the college student, and to the experienced professional. Making rational and intelligent choices is further developed by a growing awareness and understanding of their consequences.
2. *Responsibility*—When a student is the active agent for his own learning, he makes a deeper commitment to a task. He tends to be more self-motivated and self-directed than he would be when in a situation where the teacher alone is responsible for the learning.
3. *Individualization*—While providing opportunities for all learners to gain competencies, the educational program should be sufficiently flexible to accommodate itself to the needs of individual students.
4. *Self-awareness*—Understanding of one's own origin, experiences, values, and identity may be one of the most important characteristics of the effective teacher. It may also be the most neglected aspect of teacher preparation. Perhaps more than ever before, today's teacher must be aware of his own attitudes in order to deal competently with conflict, controversy, and confrontation in the school and community.
5. *Social awareness*—Only after some degree of self-awareness has been achieved can the student begin to reach out to other people. The person who knows who he is can more easily relate to the world in which he lives. His effectiveness in fostering learning is enhanced by his knowledge of anthropology, sociology, psychology and the other disciplines.

6. *Communication*—This is the principal vehicle of learning. Both the impressive and expressive acts of reading, listening, speaking, and writing occupy the prominent position of facilitating learning. Communication also embraces music, the visual arts, movement, dance, and all forms through which we relate to others.

With the acceptance of the six elements stated above, a teacher preparation program has been fashioned to include opportunities for undergraduates to experience each element. Although a recommended sequence of courses is offered, the program may be modified to meet the needs of the individual student.

Phase one. The initial phase of the program is based on the philosophy of choice. Freshmen eager to begin dealing with the realities of the adult professional world are welcomed into a freshman seminar. The students are organized into groups of twelve to fifteen participants. Seminars are chaired by senior education teaching assistants. The senior teaching assistants work closely with the professor who is responsible for coodinating the teaching assistants. Participating in freshman seminars is an important dimension of the seniors continuing professional preparation. The *Teaching Problems Laboratory* (*1*) is a simulated approach used by the teaching assistants. Specific topic problems are chosen by the seniors, including several topics on reading. Resources and bibliographies are constructed by them. Freshmen students choose to read and investigate a variety of sources to aid them in developing a repertoire of strategies to solve the critical incidents presented.

The coordinating professor conducts a number of the seminars. Beginnings of group interaction occur as professor and students explore the humanization of the schools and what it means to be a teacher. In-depth examination of the learning resources available for the student are studied. A solid base of research findings and literature, from which the student may choose to investigate during his program, is presented.

Mager's book on *Preparing Objectives* (*2*) is used for two purposes. First, it is used to help students to write objectives and plan teaching strategies; secondly, to provide experience in using programed material. Students are encouraged to devote one half day a

week as a volunteer, serving as a teacher-aide in an elementary school. The primary thrust of phase one serves to help the freshman make the choice of a professional teaching career. It assists the education professors in counseling a student who may have questions about his commitment or suitability for teaching. Simulation, group dialogue, field experiences, and introduction to professional reading all support the idea that decision making and choice rests with the individual.

Phase two. Sophomores, having made a choice to continue the education sequence, enroll in the communication course. Historically, a course designed to teach students the process of reading and the language arts, it is now the unifying core around which the preparation program is structured. During this time, each student examines and assesses himself through the scores on selected standardized tests which measure personality, ability, and reading achievement (*4*).

Evaluation by professors and individual students of life experiences which may affect a student's readiness level for teaching is accomplished through a comprehensive questionnaire and individual conferences. Competencies and skills are noted. Student and professor then chart experiences, cooperatively determined, that the student may pursue. This procedure is the reverse of the more common practice of mechanically fitting students into neatly packaged programs. A decision is reached which determines the locale of the student's field experience through professor/student dialogue. Close alliance with elementary schools provides settings for field experiences. Professors spend portions of each week as staff members within selected schools.

For many students, the strategy is to place the student with an individual child. Together with the classroom teacher, the supporting personnel of a specific school, and the professor, the student develops a case study accompanied by a diagnosis of a child's strengths, weaknesses, and learning style. As the college student administers formal and informal tests, evaluates, and converses with the child and the school personnel, the child's current pattern of behavior emerges. The student then investigates the variety of resources available for determining the study program for the child. This program is carried out over a ten-week period.

Students meet in one large group session on campus each week, at which time the professor brings relevant theory, structure, and additional resources to the students. Seminars are held with small groups of students in the elementary schools where they are doing their field work. Classroom teachers and ancillary personnel are invited and encouraged to attend the sessions, where brainstorming, problem solving, and alternative techniques are offered and discussed.

Closely allied to the reading process are the other impressive and expressive arts. The program is not only concerned with listening, oral communication, and written communication, but embraces art, music, creative dramatics, and those tools which aid communication and understanding. Formal examinations are not given to the college student. During this phase of the program, he is expected to demonstrate commitment, stamina, maturity, and resourcefulness.

As the semester progresses, each student is responsible for compiling an annotated bibliography of his professional reading. He also maintains an expanding file of reprints, clippings, poetry, snapshots of projects, cassettes of lectures, discussions, and interviews, plus anecdotal records of meaningful incidents.

Through the experience described above a professional person is starting to take shape, not one that is carefully predetermined, but one that emerges from partnership of student, professor, classroom teacher, and child. Experiences that reflect the individual, his responsibility, his self-awareness and other awareness, his development, and his choices are all elements of the emergence of a teacher.

Phase three. Second semester sophomores, armed with a knowledge of self, the reading process, a child, an elementary school setting, and professional readings and experiences, now move to an area of ever-increasing concern—the preschool. Fortunate to have excellent facilities and personnel trained by the staff, the students form task groups to function with the young child. The preschool curriculum and philosophy is a result of two years of study, experimentation, and implementation.

A free, responsive environment provides students with the opportunity to observe children, to make choices, and to be responsible for their decisions. Special emphasis is placed on guiding students in

observing and aiding children's language development. Labeling, recording dictated stories, storytelling, and dramatic play occur daily. Child behavior is carefully monitored. Intuitive intervention is first observed and then tried by students.

Another dimension of the program which is important is participation in a setting where inservice personnel are being retrained. The value of the interaction between young and mature students is yet to be measured but promises to present important findings.

Accompanying the field work, professors offer lectures, films, and seminars on the development and the comparison of approaches to early childhood education. Students are led to discover the school as an outgrowth of a culture. Evidence of children's language facility as a predictor of success in school becomes obvious.

Phase four. Juniors return once more to the elementary school level. The students generally choose a different school in a different neighborhood. In the contemporary elementary school, students discover that children cannot successfully achieve in the content areas without specific reading skills. The higher order thinking and reading skills are reviewed and reinforced by the professor. Experiences are planned with the student to offer opportunities for them to teach small groups and whole classes in the content areas.

Microteaching with peer groups is videotaped to enable the student to analyze his procedures before carrying out the lesson with children. After the college student gains confidence, his professor and peers are invited to share the tapes and offer suggestions for altering the strategies employed.

Units are written by individuals or teams of students. Interaction in seminars at the elementary schools continue with the students at various stages of preparation and faculties from college and elementary schools learning together.

Phase five. Second semester juniors with four semesters of experience in the field again join with faculty to evaluate individual progress. An area of interest is jointly chosen with the major responsibility for the choice carried by the student. Any relevant topic may be explored and a serious in-depth study is conducted by the student. Again, one-half day a week is spent in yet another school setting and, by now, with children in the age range in which the student is most

interested. If the independent study lends itself to a field experiment, it is conducted at this time. Seminars are held with professors to examine ideas, experiences, and points of view. Most students discover that success in the school for the child rests mainly with his achievement in reading. Specific approaches, materials, organizational patterns, interest, poetry and other language art topics are just a few of the topics generated and field tested. Occasionally, the college faculty recommends specific experiences or study to shore up any observable weaknesses.

Phase six. Seniors engage in the traditional student teaching experience with some differences. Most students have chosen the age group and specific school in which they would prefer to complete the minimum program requirements. The elementary school faculties and facilities are frequently familiar to the student. The transition to a full day in a known setting is easier than working in a new and unfamiliar setting. The total responsibility for teaching the class now rests with the college senior, with the exception of an afternoon per week which is devoted to seminars or other learning experiences.

In addition to the six phases of preparation which lead to recommendation for certification there are two elective courses provided.

Phase seven. Since the college operates on a 4-1-4 calendar, students may elect to take the one month interim in Education. Reserved for juniors and seniors, the course is designed for cultural and social immersion. Stations are identified where instructional programs in reading are conducted on an Indian reservation, a migratory farm camp, and in a rural area of Appalachia. Several students form a team and spend three weeks living and teaching at a station. Armed with a small movie camera, a 35mm. single lens camera, and a cassette tape recorder students record experiences in the field. Upon their return to the campus, cross fertilization of ideas and experiences occur as visual and auditory products are shared.

Phase eight. Second semester seniors who choose the challenge of teaching in an urban setting have the opportunity to enroll in a seminar which guides the student through a variety of experiences and encounters in school settings where racial tensions are high. Experienced teachers who themselves have been specially trained to

teach reading to disadvantaged youngsters serve as supporting resource teachers for the last phase of the preservice experience. Films, simulation, speakers from the black community, and experiences with economic deprivation contribute to an awareness of life in the ghetto. Examination of motives, information, and racist attitudes of both black and white college students is guided by a team of professors from both races. The final reality which is "discovered" by the students is that the key to teaching in an inner city school is to help the children learn to read.

The model described in this paper is still in the process of evolution. The education department embraces in part Mead's statement (*3*) that our concern is not to direct students in ". . . what to learn, but how to learn and not what they should be committed to, but the value of commitment." The preservice program is in an urban community. It is a becoming project which cooperates closely with a neighboring university. Faculties and facilities are shared along with the desire to make a difference in teacher preparation in the resident city. Without the cooperation of the public schools and a selected independent school our field oriented program would not be becoming.

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Implementation of Two Experience Approaches as College Methods Courses in Teaching Reading

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THE PAST SEVERAL YEARS have seen the "changing curriculum" descend upon university teaching. Education, specifically reading education, has become a pioneer in introducing many of these new programs and procedures. Reports, including *The Torch Lighters, The First R,* and I.D.E.A., have all directed attacks at present day approaches to educating teachers of reading. Student descriptions of education courses as Mickey Mouse, unreal, and not relevant, coupled with the knowledge that success in learning is greatly dependent upon the quality of teaching, have been factors in establishing experience and problem oriented curriculums which utilize real children and real settings.

Reactionists to this form of education claim it is too "technical" or "tradesman-like" and unbecoming of the term *profession.* Some claim it is similar to the training of the journeyman, plumber, mechanic, or electrician with a trial-and-error approach to learning. In many ways it is. Yet, education is not the only profession seeking greater relevance—medicine and law are also beginning to seek the real world as a laboratory for learning.

Reports by Olson, Guszak, and this writer have shown various approaches to teaching a problem oriented curriculum. These reviews have been narrative, descriptive of elaborate clinics, and unique classrooms with evaluation based upon student opinion. None, however, have dealt with a research design subjected to statistical evaluation.

Purpose

The purpose of this study was to conduct and evaluate two experience oriented approaches to a methods course in teaching read-

ing. The specific objectives were to determine the value of the two approaches as teacher training laboratories and to assess the value of the two approaches as a clinical learning experience for urban children.

Significance of the Research

Where can we provide an experience approach to learning that best meets the needs of teacher trainees? Does the approach that provides the best learning experience for teachers in training also mean it is the best learning experience for children?

The conclusions drawn from these two questions are of the utmost importance in the ultimate revamping procedures used in teacher education. Do we as a university develop clinical experiences using vast amounts of money and university space or do we use natural clinics—the public school setting? Then, after justifying the expense and value to the university and its students can we also justify the clinic as the best possible learning situation for children?

Program

Approach 1. One hundred students enrolled in "Methods of Teaching Reading" participated in a bus lecture experience approach to learning. These students received their lectures on a bus as it traveled to and from Hartford, Connecticut. Once in Hartford, the students spent forty-five minutes, twice weekly, tutoring individual children and forty minutes instructing small groups of children.

Approach 2. A second one hundred students enrolled in "Methods of Teaching Reading" participated in a separate clinic experience. They received the same lectures and course content as Approach 1 in a traditional classroom setting. The clinic assignments corresponded to those in Approach 1 except they were at the university's reading center.

Evaluation

All of the university students were given a teacher attitude inventory, and the writer constructed pre- and post-teaching invento-

ries and cooperating teacher evaluations to be used in conjunction with the following semester of student teaching.

The clinic children were evaluated pre- and post-program with a capacity achievement, subskill inventory, and an attitude inventory.

The data was analyzed in light of the following questions:

1. Which experience approach to teaching provides the UCONN students with:
   a. The greatest knowledge of reading skills?
   b. The greatest awareness of the behavior and attitude of the inner-city child?
   c. The greatest effect upon student teaching ability?
2. Which experience approach to teaching provides the elementary school child with:
   a. Maximum learning growth in general achievement?
   b. Maximum subskill learning?
   c. The greatest growth in attitude toward reading and school?

Specific Measures

I. The following measures were used to obtain statistical information on the effectiveness of the two programs as teacher training laboratories:

   A. Knowledge of reading skills: Three informal tests
      1. Knowledge and application of phonics and word attack skills (sample item: divide the following words by syllables and give your reason for so dividing: gulot, ellop)
      2. Knowledge of reading materials and their uses (sample item: List the steps in a directed reading lesson)
      3. Reactions to situations (sample item: Listen to tape recording—mark oral reading errors and design a corrective reading program)
   B. Attitude: Minnesota Teacher Attitude Inventory (sample item: Most children are obedient. Key: strongly agree, agree, undecided or uncertain, disagree, strongly disagree)

C. Effect Upon Student Teaching: University of Connecticut Evaluation Form
(sample item: teaching skills—i.e., appropriate variety of activities. Key: excellent, good, acceptable, unsatisfactory, not observed)

II. The following measures were used to obtain statistical information on the effectiveness of the two compensatory education programs in reading:
A. Achievement: Stanford Reading Achievement Test
B. Subskill Learning: Informal measure of basic phonetic and word attack skills
(sample item: We go to ch – – – – every Sunday)
C. Attitude: Informal reading attitude scale
(sample item: Do you like to read at home? No, Yes)

Results

Table 1 shows means and standard deviations for the two university student groups at the outset of the program and points to the differences between the groups.

TABLE 1

QUALITY POINT RATIO'S AND MINNESOTA TEACHER ATTITUDE SCALE SCORES OF UNIVERSITY STUDENTS PRIOR TO PROGRAM INITIATION

Measure	*Approach*	*Mean*	*S.D.*	*t score*
Q.P.R.	1 (public school)	2.76	.34	.001
	2 (university)	2.81	.36	
MTA	1 (public school)	57.2	24.1	.04
	2 (university)	64.6	33.1	

The initial testing of the university students indicated no appreciable differences between groups. However, the slight differences favor the students in Approach II.

Table 2 shows means and standard deviations for the two elementary student groups at the outset of the program and points to the differences between the groups.

TABLE 2

ATTITUDE, ACHIEVEMENT, AND SUBSKILL SCORES OF ELEMENTARY SCHOOL CHILDREN PRIOR TO PROGRAM INITIATION

Measure	*Approach*	*Mean*	*S.D.*	*t score*
Achievement	1 (public school)	2.37	.67	1.50
	2 (university)	2.26	.76	
Subskill Knowledge	1 (public school)	65.00	9.95	.09
	2 (university)	65.10	5.75	
Attitude	1 (public school)	19.10	5.70	1.88**
	2 (university)	19.88	4.17	

The initial testing of the elementary school children indicated that of the three areas tested—achievement, subskill knowledge, and attitude—there was no statistical difference in mean scores between groups. The largest difference was in attitude which favored the population in Approach II.

According to the above data the random selection of students, both university and elementary, was effective in establishing compatible groups.

Table 3 gives the means and standard deviations for the two university student groups after completion of the methods course training.

Approach 1 was favored in each of the above categories. Statistical significance differences at the .01 level of confidence were found in reactions to situations, teacher attitude, and effort upon student teaching.

Table 4 gives the means and standard deviations for the two elementary school student groups after completion of the compensatory education program.

Statistically significant results favoring Approach 1 were obtained for both general reading achievement and attitude toward reading. The scores of 7.33 and 5.83 are significant at the .01 level of confidence. There was no statistically significant difference between approaches in subskill learning. However, the difference of .85 favored Approach 1.

TABLE 3

COMPARISON OF KNOWLEDGE OF READING SKILLS, TEACHER ATTITUDE, AND EFFECT UPON STUDENT TEACHING OF THE TWO APPROACHES TO TEACHER EDUCATION

Measure	*Approach*	*Mean*	*S.D.*	*t score*
Word Attack Skills	1 (public school)	85.30	8.05	1.01
	2 (university)	84.20	11.25	
Knowledge of Reading Materials and Uses	1 (public school)	76.85	10.05	1.17
	2 (university)	78.95	14.85	
Reactions to Situations	1 (public school)	78.55	10.90	2.39*
	2 (university)	72.70	12.15	
M.T.A.	1 (public school)	86.3	24.2	1.71**
	2 (university)	66.2	24.3	
Student Teaching Evaluation	1 (public school)	43.30	9.30	2.39*
	2 (university)	38.80	9.80	

*statistically significant at the .01 level
**statistically significant at the .05 level

TABLE 4

COMPARISON OF SCORES OF ACHIEVEMENT, SUBSKILL LEARNING, AND ATTITUDE TOWARD READING OF THE TWO APPROACHES TO COMPENSATORY EDUCATION

Measure	*Approach*	*Mean*	*S.D.*	*t score*
Achievement	1 (public school)	1.39 mos. (gain)	.49	7.33*
	2 (university)	.95 mos. (gain)	.40	
Subskill Learning	1 (public school)	78.90	10.05	.85
	2 (university)	76.10	14.85	
Attitude	1 (public school)	31.40	9.62	5.83*
	2 (university)	24.68	11.71	

*statistically significant at the .01 level

Conclusions

From an analysis of the data the following conclusions may be drawn:

1. University students involved in methods course training in the public school setting appeared to develop greater teacher competencies than those students trained in isolated clinics at the university.
2. University students' attitudes toward children and teaching can be changed more successfully when they participate and work in the inner-city environment.
3. The attitude of teachers and their ability to cope with classroom situations appears to be more important than the teachers knowledge of certain reading skills.
4. The reading achievement of inner-city children appears to be greater when they receive instruction in their own environment than when they are instructed in an unnatural setting.
5. Children's attitudes toward reading appear to be changed more successfully when they are instructed in their own environment rather than in a university clinic.

These conclusions indicate that both university students and children receiving compensatory education benefit more from remedial instruction when they are taught in the child's real world—the inner-city environment.

Producing and Using Videotapes in Preservice Education

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GRADUALLY, today, we are becoming aware of the fact that television actually creates a new environment and therefore, as Marshall McLuhan tells us, a new human being. Freed of space and time by science and art the technology of the new media now extends our senses and increases our powers of communication beyond anything anticipated fifty years ago. Television, which blends the worlds of camera and microphone, has played a key role in initiating what is now generally accepted as the third communications revolution in history (*9*).

Television as a Media of Communication and Education

Television has been preceded by three revolutions in communication. Television has an important role to play in extending the services of the results of all of these revolutions in aiding education in a great variety of ways.

The invention of speech brought about the first communications revolution. Speech permitted the extension of learning in that the knowledge acquired through time could now, through speech, be available to each new member of a group. Acquired characteristics of a people could now be transmitted from generation to generation involving man in a new kind of evolution distinctly and uniquely human.

The invention of writing initiated the second communications revolution. Through the provision of visible symbols for things and ideas, both the spatial and time range of human communication became greatly increased and it was possible now for ideas to endure beyond the span of a civilization. Through its three stages—picture writing, sound writing with an alphabet, and mechanical print—the

possibilities of widening man's experience to encompass the world (past, present, and future) and to conquer time and space were vastly increased.

Electronics and the new technology of sound and sight are now creating a third communications revolution. The first electronic inventions separated sight and sound with the telegraph, telephone, and phonograph on the one hand and the photograph and motion picture on the other. Then, just as the alphabet (sound writing) brought about the marriage of ear and eye in connecting speech with picture writing, a series of new communication devices (radio, the talking picture, and then television) have again joined sight and sound in electronic broadcasting.

Television extends man's senses through all the worlds of camera and microphone, enabling us not only to see and hear more vividly but to understand more deeply. It provides us with the instruments for observation, magnification, and distribution of the elements of human experience as well as with means for motivating human behavior. It gives educators the ability to record, preserve, and reuse experience. Television plays a key role, not only in the new communications revolution, but in the accompanying reconstruction of our educational systems. Television can distribute the services of the specialist to a greater number of students, thus facilitating opportunities for team teaching, freeing the teacher for more individual work with students, and so moving in the direction of more personalized and humanized teaching. Television can also become a link between school and home and extend educational advantages and responsibilities beyond their present scope to effect changes of which we have, at present, only vague premonitions. "An infant industry, educational television has just begun to scratch the surface of a great potential which can make it the greatest boon to mankind since the invention of the wheel" (*9*).

Some Uses of Television in Preservice Teacher Education

For the present, the problem facing those in teacher education is to learn what television or videotapes can do best for us and how

to use them (*2, 4, 10*). Some of the uses we have found for videotapes are as follows:

1. As a device for carefully developed *large group presentation of content through lectures or demonstrations.* These are usually presented by specialists and involve studio televising and closed circuit playback scheduled in different classrooms and supervised by someone other than the teacher presenting the lecture. Often these lectures are part of a team teaching program.
2. As a *teaching illustration or demonstration* of a specific procedure or strategy in the use of materials, in concept development, to motivate, or to provide examples of some other designated teaching task (*8*). The materials are prepared by an instructor for use with students either in class or at the viewing center.
3. As an *observation device* either substituting for student classroom observation, child study, or using it to gather data supporting research on teacher behavior, pupil behavior, or teacher-pupil interaction (*1*).
4. As an *evaluation and/or learning device* involving feedback for immediate and private or supervised self-analysis and self-evaluation as in microteaching (*6, 7, 12*). This device can also record data for supervisory analysis in regular student teaching through independent or supervised student use of portopacks. In a formal examination or class testing situation the tape can provide data for analysis.
5. As a *student initiated professional demonstration* related to a class project or assignment. Here the student reports information in a multimedia presentation (*3*).

Producing Videotapes

Production of videotapes for professional use in teacher education is not a simple matter. To be successful the project must be a team effort involving at least three specialized personnel with different functions.

(a) the *instigator or educator* who sets the objectives and determines the content and use of the videotape;
(b) the *technical staff* who capture the desired content on video and audio recordings (*13*);

(c) and *the director* who is the media professional working with the educator to design the learning experiences, and who assumes responsibility for the logistics and for communication with technicians—in short, responsibility for producing, evaluating, and editing the final tape.

Using Videotapes with Students

To be effectively used with student classes several necessary preliminaries are usually observed:

1. Considerable planning and organization to structure the accompanying verbal presentation is carried out. A videotape serves best as an illustration or example in a larger instructional unit.
2. Preparation of the viewers is necessary. Viewers notoriously see and hear only what they are looking for. Through posing questions, setting viewing purposes, and guiding the viewer throughout the observation of the tape the skilled teacher can direct attention to the behavior, procedures, or strategies which will illustrate the purposes for which the videotape was made.
3. Some previous evaluation and editing of the videotapes themselves often involve separating parts, eliminating bits, and adding explanatory continuity.
4. Opportunities for stop action and rewind for replay should be provided to permit the instructor to direct attention to specific content in the tape and to focus on certain student or teacher behavior.
5. Short five to ten minute viewing units are much more useful than those that drag on without specific viewing direction vaguely attempting to present a complete lesson or teaching presentation at one viewing. Often parts can be selected or separated and continuity added to the classroom observations during the editing of the first production but, when editing is not possible, this can be done right on the spot by the instructor.

Some Do's and Don'ts

Do Be Both Creative and Innovative in Initiating and Designing Videotapes for Educational Purposes. Do understand that educa-

tional television is a new animal; search for new and different uses for it. "The methods, techniques, and standards appropriate to conventional television should not be unimaginatively imitated by users of this new equipment. The unique characteristics of this medium cry out for innovative people with new ideas. It is our hope that the cries of this newborn creature are not in vain" (*5*).

"Educational television is neither a teacher substitute nor a film substitute, but a unique communications medium with its own special place in an educational context" (*10*).

Do Clarify, Specify and Limit Objectives for any Videotape Production. Make these objectives clear to the director who, in turn, will communicate them to the technical staff. Don't proceed in the false hope that, without purpose, design, or direction the technicians may just happen to pick up something that might be useful. Without careful focus and direction, the resulting tape may have the figure so inextricably merged with the ground and the noise and clutter will be so extensive that nothing of consequence can be perceived by the viewer.

Do Remember that a Successful Production Requires a Team Approach. Don't expect to be an expert in the direction and technical production of the designated learning experiences. Trust and use the advice, direction, and services for your media professional who, as director, is the key person on any videotaping team. Do use him as the communicating agent between the initiating and technical agencies.

Do Guide the Viewer in Establishing Clear and Specific Viewing Purposes. Don't show tapes without careful preparation and directions for the viewers throughout the length of the tape.

Do Keep Viewing Units Short. Divide tapes into parts illustrating single concepts, simple strategies or single steps in procedures. Don't concentrate on more than one thing at a time. Rather rewind the tape and redirect attention to another aspect of its content.

Cyphert and Andrews very neatly sum up the place of videotaping in teacher education as follows:

Videotaping is neither panacea nor problem; it is a potentially promising tool which experimentation should prove useful for well-defined objectives in teacher education (4).

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Using Paraprofessionals as Reading Aides

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WHENEVER a professional organization such as the International Reading Association or a group of licensed teachers participates in the training program of paraprofessionals or teacher-aides, a cry usually arises, "You're creating instant teachers or reading specialists. How can you do it?" The answer is simple. "We can't do it and we're not doing it, but the need is desperate and we must help." This philosophy is expressed by Rauch (*7*) in the *Handbook for the Volunteer Tutor* (substitute "paraprofessional" for "volunteer tutor").

> The volunteer tutor for the most part is not a trained teacher, reading teacher, or reading specialist. He may possess essential intangibles (desire, zeal, understanding), but he is not a trained technician. In many instances he will be working with children, adolescents, or adults who require the services of a reading specialist with advanced training, but such services are not available. Can one afford to do nothing or just wait around hoping for the skilled teacher to appear on the scene? The answer is an obvious "No." There are hundreds of thousands of individuals who need help, and the only persons who can offer this assistance are volunteer tutors. One must attempt to make the most of these dedicated people who have offered their services. But one must supply them with some background and training. It is the hope that this handbook will furnish some of the answers.

We have reached the stage where the use of paraprofessionals has been accepted on a nationwide scale. One report estimates that one elementary teacher in five in the United States has at least the part-time services of an assistant (*1*). A 1967 report of the California Teachers Association indicated that at least one-third of all school districts were then using some teacher aides (*2*). The most recent

but unofficial reports estimate that 20,000 paraprofessionals are being used in New York City schools. On the basis of the writer's observations, it would not be considered venturesome to predict that surveys of the 1969 school year will show even larger numbers of paraprofessionals being used in the classrooms. No longer is it a question of whether we should use paraprofessionals, but how best to prepare them and use their talents and potential. Davies (*3*), realistically described the values and limitations of auxiliary personnel as follows:

> The introduction of auxiliary personnel into a school system may provide more individualized education for children and youth, may make possible a more flexible structure in the classroom, may make the job of teachers more manageable and productive, may serve to link school and community more closely, and may induce a reassessment of all the roles in education. On the other hand, auxiliaries may be introduced into a given school system without any of these effects. *Auxiliary personnel are nobody's magic answer. Their potential contribution to the quality of education will not be realized automatically.*

The Selection of Paraprofessionals

In response to the question, "How much formal education should the paraprofessional have?" one supervisor replied, "The number of years of formal education is secondary. I'm looking for decent, sympathetic human beings who can relate to children." The applicant must be literate. Academic requirements and the results of written examinations or standardized tests should be secondary or minor considerations. Personal qualities and characteristics that reveal an ability to relate to and understand children are far more important criteria. Harris (*5*) in discussing the characteristics of good remedial teachers, also emphasized the human qualities:

> The most important single characteristic of a good remedial teacher is his real liking for children. The liking must be genuine—the children quickly detect the difference between a warm, friendly person and one who puts on a show of friendli-

> ness without really feeling that way. Appearance, dress, age, speech, theoretical knowledge, experience—all these are less important than a genuine fondness for children as they are, complete with their faults and annoying habits.

Since many of the jobs of the paraprofessional as a reading aide relate to the one-to-one relationship or working with small groups, it is important that a real liking for children be evident. Another factor that must be given serious consideration is the paraprofessional's ability and willingness to follow the teacher's plan and directions. In plain language, the teacher is in charge in the classroom and there should be no debate about this fact. It has been the unhappy experience of the writer to watch one paraprofessional program go under because of the assumption made by a few paraprofessionals that they were the equals of teachers in training, insight, and experience after thirty hours in the classroom. Happily, this incident has proven to be the exception in a long series of successful programs. One final precaution: the teaming of the licensed teacher with the paraprofessional must consider the background and personalities of each. Combining a confident, aggressive paraprofessional with a timid, insecure teacher is like striking a match on a powder keg. The arrangements must be made with the understanding that the teams are not necessarily permanent, and that changes can be made.

Preparing Paraprofessionals to Serve as Reading Aides

A successful program involves preservice and continuing inservice training. But the training program and utilization of paraprofessionals must not become a dead end in terms of career development. There must be promise and assurance of advancement for paraprofessionals as they progress in terms of training and experience. The Division of Teacher Education and Certification (*4*), New York State Education Department, has stated five basic premises for career development of auxiliary personnel:

> 1. That the involvement of persons with a wide range of skills, training, experience, background, and potential may provide a better learning environment than the assignment of all

educational tasks in a classroom to one person who, alone, must attempt to meet the individual needs of many pupils.

2. That participation in the learning-teaching process of persons from the neighborhood served by the school, particularly parents, may increase home-school-child interaction.

3. That broad community involvement in planning educational programs may contribute materially to the social relevance of such planning—i.e., relevance to the needs, interests and real concerns of the school population.

4. That the opportunity of career development for auxiliaries may serve to motivate them in two distinct but interrelated ways: a) in terms of their personal growth and ability to cope with life situations; b) in terms of their increased competence on the job.

5. That the establishment of a new career line for auxiliaries may foster career development for the total educational enterprise, with new leadership roles at various occupational levels and increased motivation for professional growth throughout the system.

The Instructional Program (Preservice and Inservice)

The training program should involve both the paraprofessional and the licensed personnel (teachers and supervisors) with whom they will be working. This will enable all parties to get to know one another, and to sense the possibilities for working as a team. Emphasis should be placed on realistic, practical classroom situations, using demonstrations and role-playing as teaching techniques. Where possible, the use of multimedia and the analysis of audio and videotaped performances of classroom activities should be essential features of the training program.

A suggested listing of basic topics follows:

1. The role of paraprofessionals as reading aides
   a. Responsibilities as a working member of school-community team
   b. Relationship with classroom teachers
   c. Establishing rapport with students
   d. Expectations and limitations of auxiliary personnel

2. The nature of the reading process
   a. Definitions of reading
   b. Reading as a language art
   c. Reading as basic to education
3. Why pupils fail in reading
   a. Social and emotional factors
   b. Intellectual factors
   c. Physical factors
   d. Educational factors
4. Reading jobs of the paraprofessional (see previous section)
   a. Use of games, workbooks, kits, basal readers
   b. Using audiovisual materials in the classroom
   c. Demonstrations of classroom activities
   d. Analysis of audiovideo tapes
5. The fundamentals of reading
   a. Word recognition skills
   b. Basic comprehension skills
6. Encouraging personal and recreational reading
   a. Methods and materials for motivating students
   b. Working knowledge of some basic high interest, low vocabulary books
   c. Storytelling techniques
   d. Reading interests of young children and adolescents
   e. Ways of reporting on books
7. Classroom organization
   a. Principles of grouping
   b. Types of grouping
   c. Individualizing instruction
8. Case studies and conferences
   a. Children who require special help and why
   b. Practices and techniques that have proven helpful

Reading Jobs of the Paraprofessional

In a recent evaluation of a Long Island, New York, school system, the writer included among his recommendations the following:

> The evaluator is a firm believer in the use of teacher aides or paraprofessionals in the classroom, particularly in Grades K-3. For the two or three pupils who require help in following

directions, for the two or three pupils who need a story read aloud, for the two or three pupils who need help in getting and returning materials—these are instances where the paraprofessional can be of great assistance. The use of paraprofessionals generally leads to closer ties with the community and a better understanding of the educational process. (Note: the above recommendation implies a preservice and continuing inservice program for paraprofessionals.)

Some of the reading jobs that can be performed by the paraprofessional are the following:

Listening to a student read or tell a story
Reading stories aloud to the individual child or small group
Preparing "Personal Language Charts"(*6*)
Helping a student select a book from the class or school library
Helping the slow learner follow directions as he does a workbook assignment
Assisting the gifted child in locating special materials for an extra assignment
Preparing ditto sheets or other materials to reinforce instruction
Playing word games with individuals or small groups
Helping children look up information
Correcting workbook or home assignments
Supervising seat work or make up assignments
Supervising work areas and committee activities
Helping children who missed instruction because of illness or other reasons
Directing remedial drill work
Listening to and evaluating book reports
Filing and cataloging books
Operating audiovisual equipment
Playing games with children
Helping prekindergarten and kindergarten children to use crayons, scissors, paste, or paint
Showing children how to distribute and collect materials

In addition to the above, there are many clerical and classroom management tasks that can be taken care of by the paraprofessional. As one teacher commented on the value of teacher aides, "By just

being available when I needed that extra hand . . . . No matter how much we stress training in self-direction, there are always one or two children who need that extra help. That's where the paraprofessional comes in."

Teacher Evaluation of Paraprofessionals

A teacher evaluation form is included in this paper to list and summarize those areas in which both the teacher and paraprofessional can work together, and, hopefully, make a genuine contribution to the education of all children and to the community. Permission to use or adapt this evaluation form may be obtained by writing to the Superintendent of Schools, Amityville Public Schools, Amityville, New York.

Teacher Evaluation of Teacher Aide Program*

Date_____

Name_____

Building_____ Class_____ No. of Children_____

S — Satisfactory
NH — Needs help
U — Unsatisfactory
NO — No opportunity to observe performance

Please check the most appropriate category:	S	NH	U	NO
I. Personal Characteristics				
A. Appearance and Manner				
1. Dresses appropriately				
2. Is well groomed				
3. Is poised				
4. Speaks clearly with well modulated voice, using good English				
5. Shows genuine respect, concern and warmth for adults and children				
6. Tries to improve her work				
B. Staff Relationships				
7. Cooperates with teacher				
8. Accepts constructive criticism or recognition gracefully				
9. Uses discretion in speaking of school and/or colleagues				
10. Accepts responsibility delegated by the teacher				
II. Performance				
11. Follows the teacher's plans and directions				
12. Helps maintain an attractive, healthful classroom with work areas arranged for maximum pupil stimulation and accomplishment				

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	S	NH	U	NO
13. Has genuine concern for all pupils regardless of their social, ethnic, intellectual or economic status				
14. Helps maintain discipline by guiding pupil in self-control and a respect for the rights of others				
15. Helps pupil satisfactorily as directed by the teacher				
16. Helps children to work properly in classroom situations				
17. Is acquainted with and uses instructional materials				
Please rate the aide on her total performance in the following types of duties:				
18. Clerical				
19. Preparation of materials				
20. Working in one-to-one relationship with pupils				
21. Working with small groups				
22. Housekeeping				

Please either check the appropriate category or complete the following:

III. Adjustment in the Classroom

23. The children react to the aide:
favorably_____ unfavorably_____ neither_____
24. I have established a positive relationship with the aide with:
no difficulty_____ little difficulty_____ much difficulty_____
25. The aide is sensitive to the needs of the children:
very sensitive_____ sensitive_____ not sensitive_____
26. It took _____ for the aide to feel comfortable in the classroom.
No. of days
27. The children are confused because there are too many adults in the classroom.
not at all_____ a little_____ very_____

IV. Usefulness in the Classroom

28. The time I am able to devote to instructional activities since my aide is in the classroom is:
increased_____ the same_____ less_____

29. The aide is helpful in working with some of the more difficult children in the classroom:
very_____ a little_____ not at all_____
30. The number of hours the aide is assigned to the classroom is:
too short_____ about right_____ too long_____
31. The overall job the aide does is:
satisfactory_____ unsatisfactory_____
32. The following are some tasks the aide performs:

_____

_____

_____

33. Since the aide is in the classroom, we spend more time on:

_____

_____

_____

34. I would like my aide to continue to work in my classroom:
yes_____ no_____
35. I would rather work without an aide:
yes_____ no_____
36. I would like a different aide to be assigned to me:
yes_____ no_____

V. Additional Comments

Recommended Books and Pamphlets for Preservice and Inservice Training

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